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ESTABLISHED IN 1890

1903-'04
San Dimas
Citrus
Nurseries

Telephone: Suburban 686

R. M. TEAGUE
PROPRIETOR

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"These trees shall be my books
And in their barks my thoughts 'll character."

As You Like It. iii, 3.



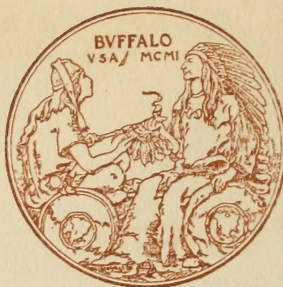
Fifteenth Thousand — Third Edition.

SAN DIMAS
LOS ANGELES COUNTY
CALIFORNIA, U. S. A.

Branch Nurseries: Lindsay and Antelope Heights, Tulare Co.

FIRST PRIZE GOLD MEDAL

FOR



BEST CITRUS TREES IN THE WORLD.

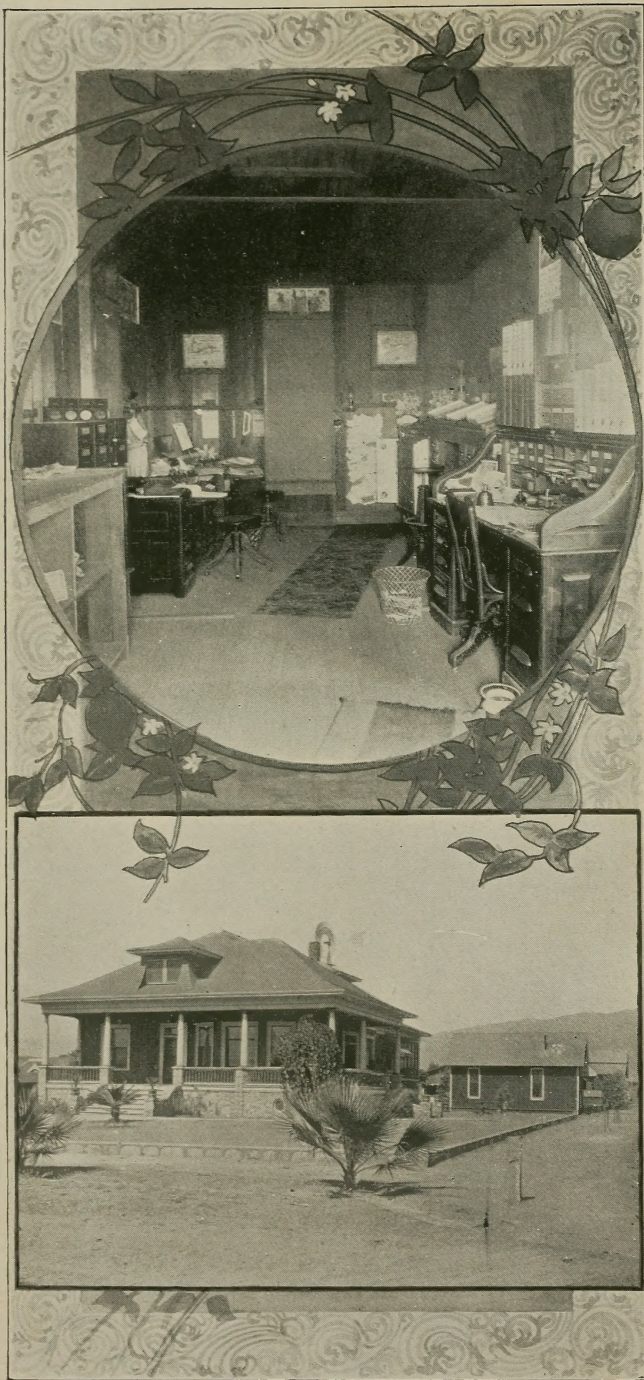
THE WASHINGTON NAVEL ORANGE IN ITALY

THE status of California horticulture is surely reaching flood-tide when her fruits find their way to the Mediterranean region,—indeed, into the historic country of a Cæsar and an Alexander. Yet that very thing has come to pass, and the man to bring it about was R. M. Teague, of the San Dimas Nurseries, who last week made a shipment of 250 Washington Navel orange trees on an order direct from the Italian government. These trees are to be used for experimental purposes in the orange growing sections of Italy, some going to Messina, Palermo, Naples and Sicilia. In this connection it is interesting to note the changes that must be taking place in that region. Obviously, the planters there have found it expedient to introduce California varieties if they are to hold their own in the markets, and compete with our best fruit. In order to learn of its adaptability to their conditions of soils and climate, they have wisely sent for some of the best-grown trees that we produce,—certainly creditable alike to the Italian government, and to the enterprise and skill of Mr. Teague as a nurseryman.

The destination of this shipment of California-grown Washington Navel orange trees is suggestive. For instance, Sicily has a population of about 225,000, and among her exports the orange and the lemon represent an annual value of \$4,125,250; the town of Messina has a population of some 125,000, and exports citrus fruits to the value of \$2,500,000, and the essence of orange, lemon, and Bergamot in the sum of \$1,500,000; Naples has half a million population, and exports \$10,000,000 worth of fruit; Sicilia, which is the largest island in the Mediterranean, grows much fruit in the warm and sheltered sections. Think of California Washington Navel trees nodding to the breeze in the presence of Mt. Ætna, or casting their fragrance on the summer air on the historic ground where Nero fiddled and saw Rome burn, and where Hannibal exercised his prowess as a warrior in the Punic wars.

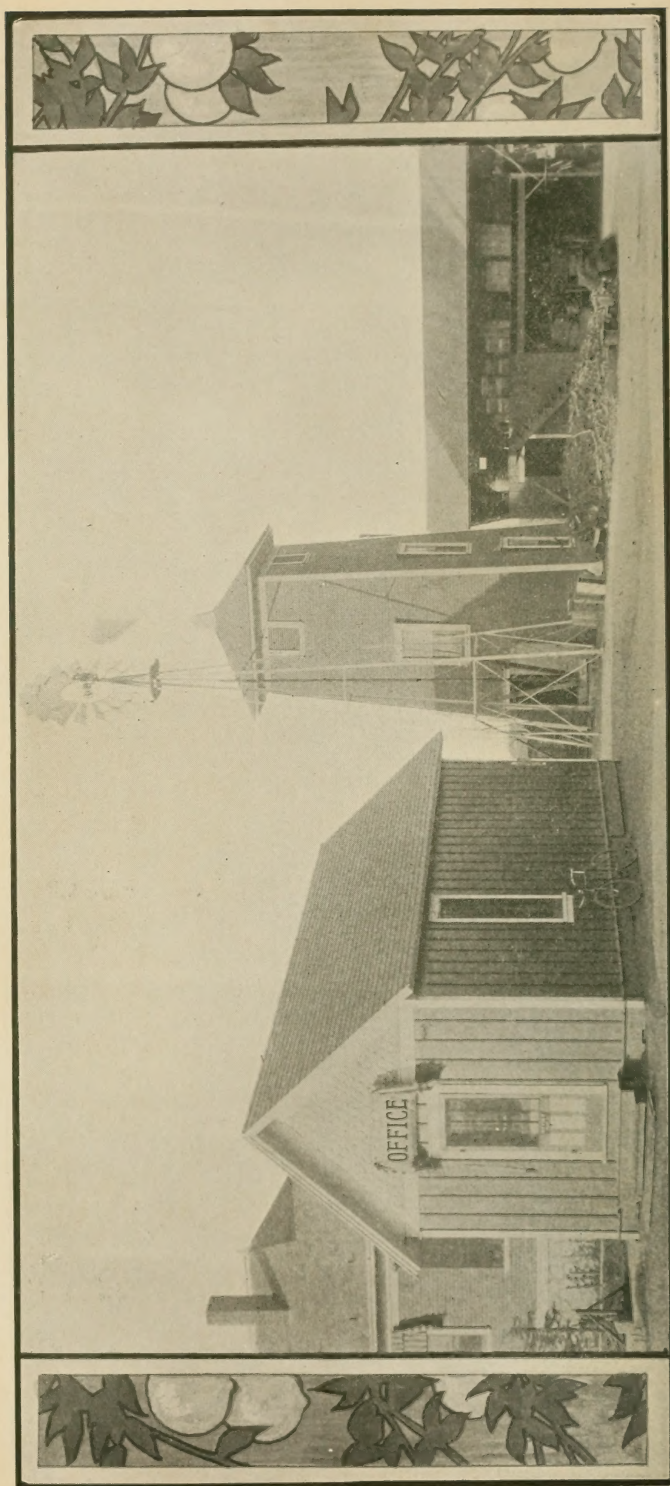
The exports of citrus fruits from Italy also afford a study in supply and demand. From them it can clearly be seen that citrus culture in this country is far from being overdone; quite to the contrary, it is only in the formative period. But to consider that California, the youngest citrus-producing country, should be exporting citrus trees to the oldest, is certainly a compliment to our advanced methods. We believe that Mr. Teague can justly be considered the pioneer in this sort of enterprise, as he has recently filled orders for South Africa, Australia, and other equally distant points. This not only affords a solace to our pride as a horticultural people, but gives strength to the conviction that our advantages are unequalled.—[From The Pomona Times.]

"Where the money comes and goes."

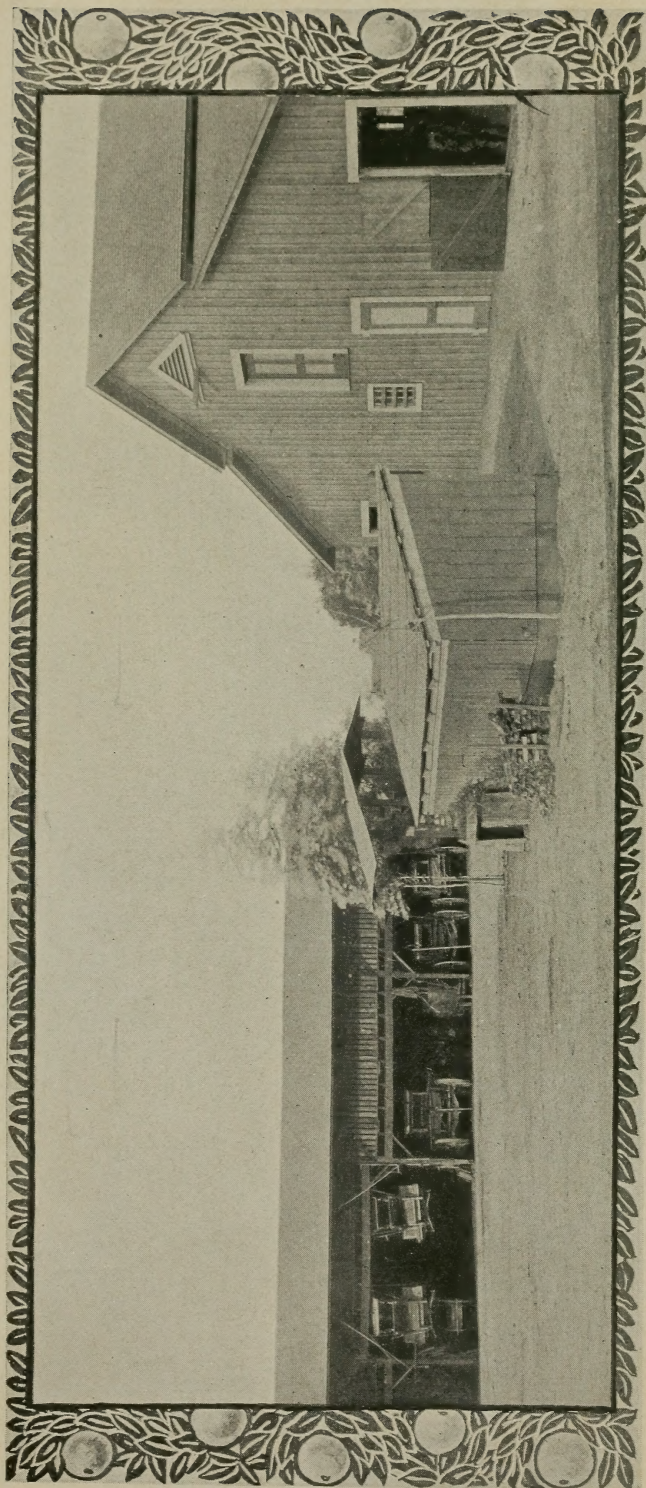


1. Interior of Business Office. 2. Residence.

"In the World of Trade and Traffic; or, where the Trees depart in all Directions."



Exterior View of Offices and Sales Yards of the largest Citrus Nurseries in the World.



General View of the Trucking Facilities necessary during the busy season.

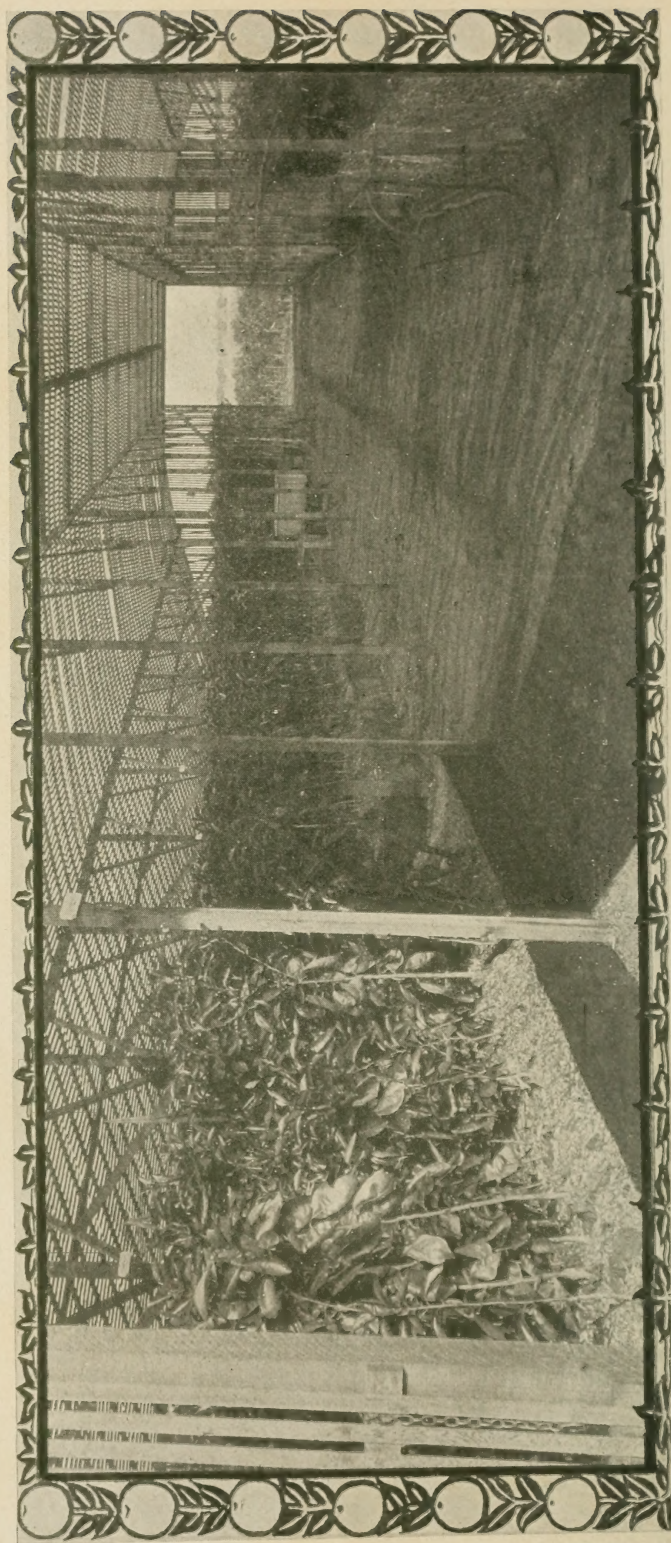


Fig. 1. Lath House No. 1, containing 10,000 Citrus Trees (balled) ready for shipment.

"A wealth and luxuriance of Lemon Trees rarely seen elsewhere."



Fig. 2. Lath House No. 2, showing 4,000 Lemon Trees (balled) ready for shipment.

"The Pomelo is rapidly becoming recognized as a popular budding stock."

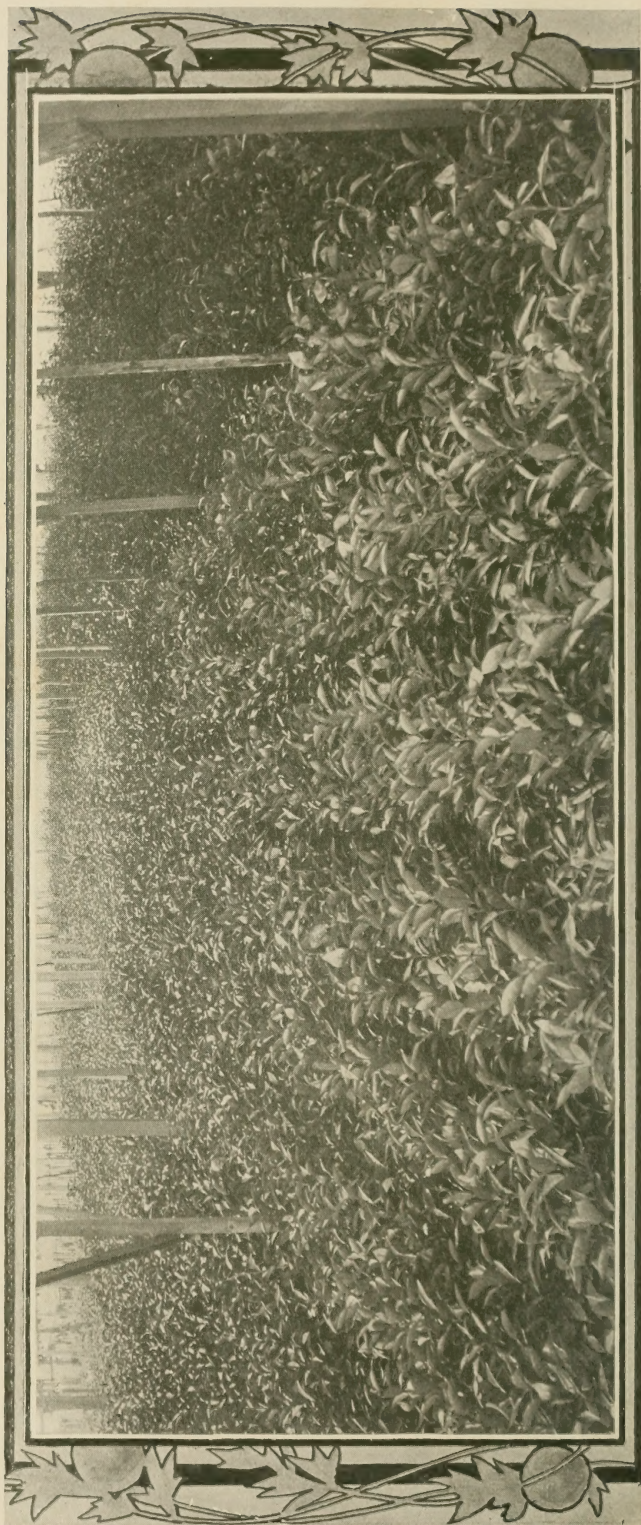


Fig. 3. Pomelo Seed Bed Stock in Lath House covering 150×300 feet, containing 200,000 Seedlings.

The Largest Citrus Nurseries in the World

A HEART TO HEART TALK.



THIS pleasant to be able to state that at no time in the history of citrus culture has the interest in orchards been so keen and the industry in so healthy a condition as at the present writing. Our sales during the season just closed have been larger than ever, and at the same time covered a wide geographical area, extending all over this State, Old Mexico, South American States, Cuba, Porto Rico, the Hawaiian Islands, the Philippines, Australia and South Africa. This demonstrates that we are not only the greatest fruit-producing section in the world, but that California-grown nursery stock and California-grown seeds and bulbs are commanding recognition wherever horticulture has a commercial existence. With this onward trend the San Dimas Citrus Nurseries have not only been in touch, but often in advance of it. The results have been self-evident; we are now in a position to meet any and all demands for the standard sorts of citrus nursery trees in any quantities.

The contents of this catalogue will be found reliable and to the point in every detail. We have been especially careful and conservative in our descriptions of varieties, aiming to be plain, concise, and to the point. The numerous half-tones, showing views of our large lath houses in which we store our stock preparatory for shipment; also of our seed beds, illustrating the strong and vigorous growth of our seedling stocks; one containing 75,000 citrus trifoliata plants, photographed nine months from planting; and the other shows 200,000 Pomelo Seedling stock. Those illustrating orchards planted to our trees and those picturing methods of irrigation are direct from photographs, hence true to nature. Of themselves, they form a splendid object lesson in the growth and care of a citrus orchard, and also show that our trees are properly grown in the nurseries to produce best results when submitted to the test of orchard growth. The text which accompanies the illustrations—the instructions on planting, care, etc.,—will be found valuable and to the point.

Long experience has shown us the urgency of keeping our varieties *true to name*, and hence we are at all times anxious and willing to replace, on good and sufficient evidence, all trees that may prove otherwise; nevertheless, it is mutually understood and agreed between purchasers and ourselves that we shall not at any time be liable for any amount greater or in excess of the original price of the stock at date of sale. Certain it is, the class of trees we produce are good growers and good sellers. Where one order goes, others are sure to follow.

If this catalogue does not interest you, kindly hand it to a friend who would appreciate it; or, if you wish more catalogues, we will gladly send them free to any address.

Soliciting a continuance of your valued favors, we remain,

Yours very truly,

R. M. TEAGUE,

San Dimas, Cal., January 1, 1903.

SAN DIMAS, CAL.

The Largest Citrus Nurseries in the World

AYES AND NAYS OF CITRUS CULTURE



FROM where we stand as far as eye can reach to the south and east, was once a great grain field, where now the orange and the lemon occupy the landscape," remarked genial R. M. Teague to me one day last week. We were standing on the platform of the packing and shipping establishment of the San Dimas Citrus Association, and before us in all directions spread the wealth of orange and lemon groves. "Yes," mused mine host, as another puff of smoke from a fragrant Havana went curling into thin air, "twenty years ago 'me and mine' were cultivating this land to the cereals, and hauling the product by team to Pomona, from whence it was shipped to market. What a transformation has taken place in those short twenty years. Pasadena was a colony, Pomona but a spot on the map, Ontario but an inception, with the lesser points up and down the valley, mere trading places, almost devoid of orchards, and barren of irrigation and enterprise. And then the railroad came, and the country was jolted out of its pastoral ways and came into possession of its own. Fruit culture swept stock raising from the ranges, and lessened grain growing on the mesas and foothills. Verily, Pomona reigns supreme, and Ceres has abdicated her throne in Southern California."

Just then the California Limited shot by us at the rate of 60 miles an hour, leaving nothing but a streak of dust to the sense of sight, a "bang" to the sense of hearing, and a quickening and "git thar Eli" to the sense of touch. The scene was animating. The train gave evidence of Emerson's celebrated statement that this is the age of iron, and that if one is to attain success he must hammer, hammer, hammer, while the orange groves and Mr. Teague's superb Citrus Nurseries, situated in the heart of the citrus belt, voiced the truth far and wide that the hammering process had also struck the virgin soil and welded the San Gabriel Valley into one great orange and lemon grove. Verily, the forge and the farm go hand in hand in the development of a country.

And while the thought of the San Dimas Nurseries is on my mind, let me enlarge on it. Of course there are many such establishments in this State, nevertheless, the one over which R. M. Teague presides must be considered "the Citrus Nursery that is different." Why? The reasons are not many but startling. In the first place he is the largest citrus tree grower in the world. Now, that is a somewhat broad assertion, wanting in perspective and atmosphere. Let us view it at closer range, by weighing it carefully. Obviously, it signifies that here are propagated a larger number of citrus trees of all varieties than in any other similar



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establishment in either the Orient or the Occident; and that also implies that the trees produced are superior, for to build up a business of such dimensions inside of twelve years means that the stock, in order to find a ready market, must be superior in quality. Yea, more. It means that its market must also cover the same geographical dimensions. And I want to emphasize right here the fact that it remained for a Southern Californian to create by his own initiative and indomitable pluck a business that was possible only by continuity of purpose, and in the land of the cloudless sky. To produce citrus trees in variety by the hundred thousand, to have them all true to name and well grown, to give the whole establishment minute and careful personal supervision, to be able to command the markets both at home and abroad, are all elements of strength calculated to individualize the San Dimas Nurseries among similar establishments. But there must be some-



thing more than practical knowledge of the business, something broader and deeper than mere business qualifications, something more stable than commercial shrewdness in order to literally create out of nothing a business which stands supreme and alone in its line, and that something is the individuality of a strong man. By that I do not refer to physical attainments, nor quite wholly to mental caliber; but to good old-fashioned honesty of purpose. If Mr. Teague's success rests more upon one thing than another,

it is a determination on his part to render value for value — to give Cæsar his denarius with the conviction that chivalry and fair dealing are not quite obsolete, even in this age of the Almighty Dollar, and that honesty of purpose still has a peg on which to hang an argument in this era of a Roosevelt's strenuous American life. That is the secret of the inception, growth and present magnitude of the San Dimas Citrus Nurseries; it aims to deserve patronage, and that signifies satisfied customers, which is, after all, only another way of saying that he sells good trees at fair prices.

These nurseries are indeed happily situated in the very heart of the thermal belt of the San Gabriel valley, and comprise all told over 100 acres of choice land. The soil and climatic conditions are indeed ideal for the growing of citrus trees, the former being a deep loam of granitic formation, well drained and rich in plant food, and free from biting frosts. The improvements and appliances are modern and the best that money can buy, while the management and methods are the result of long study and observation, coupled with years of practical experience in propagating citrus trees exclusively. Needless to add, the ramification of the business covers a wide range, necessitating a force of upwards of 30 hands, and demanding the constant use of some ten or twelve wagons, twenty head of mules and horses, and the usual line of improvements essential to the conducting of business of this magnitude. Every part and parcel of the plant gives strong evidence of intensive culture, and a minute attention to details that are refreshing and stimulating in this era of "anything goes" to make a trade. R. M. Teague has witnessed the rise and fall of many a

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similar business undertaking in Southern California, and from his present "Coign of Vantage" it is my prediction that he will see others go a-glimmering down the aisles of time to prey on fortune.

But to return to the question of oranges and lemons as factors in the world of trade and traffic.

"The evolution of the citrus fruit industry must impress you as part romance and part prosaic truth, as you view it from personal experience?" I venture to remark.

"It is both comedy and tragedy," came the quick reply to my question. "Comedy, when I recall some of the doings of people of means who come here from the East to enjoy an orange grove because it looks beautiful, and the climate soothes them to rest easily and lets nature "do the rest,"—and it usually does. Tragedy, when I look back and see where people have planted groves on lands and in localities unadapted to citrus fruits, and of course made failures, or at least only an indifferent success. You cannot extract sunbeams from cucumbers. Nevertheless, these lessons have been pretty well learned, and no man with sense and judgment can at this late day go wrong in planting the orange and the lemon."

"Then you think citrus culture will expand and grow as the country in general develops."

"Most decidedly. The possibilities of California horticulture are unfolding to us every day as we gradually turn over the leaves in the great book of experience. We of Southern California are not the only turtles in the citrus fruit tank. Primarily there are three great citrus divisions to our Uncle Samuel's farm, viz., Central and Southern Florida, the delta of the Mississippi, and California. To these a fourth should be added to a modified extent. I refer to the sheltered portions of Arizona and Southern Texas. Immediately contiguous to us must be reckoned Old Mexico, which has made progress in certain locations along these lines. Since the great Florida freeze, the largest development in commercial citrus culture has been in this State, and its geographical distribution

has of late years been interesting. Taking its inception with us in the San Gabriel Valley, the planting of orange and lemon groves has extended throughout the seven Southern Counties and is now invading the San Joaquin Valley, which last year shipped some 900 carloads. Many sections of the foothill regions of the Sierras, and the great valley of the Sacramento



have been found capable of producing a fine quality of fruit, shipping last year about 500 carloads. It has been estimated that fully 1,500,000 acres of land in this State will grow citrus fruits, on much of which water for irrigation will have to be developed. While the trees are more or less sensitive to environment, good fruit has been produced at an altitude of 30 feet above the sea level, and also at 1800 feet. This indicates the range of the orange and the lemon."

"I notice you dwell on commercial orange culture, which leads me to ask what you consider the best sorts to plant for profit?"

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"First, the Washington Navel, then the Valencia Late, and other sorts in accordance with their seasons and commercial value. In lemons the Eureka, Villa Franca and Lisbon seem to be the favorites, in the order of merit in which they are mentioned. Marsh's Seedless Pomelo (Grape Fruit), is still in the lead."

"A man who by dint of his own enterprise has become the largest producer of citrus trees in the world, is surely in a position to speak advisedly on the kind of tree to plant in order to grow a paying grove."

"To cover that question in all of its bearings would be tedious reading. It is my experience that a poorly-grown tree is worse than no tree at all, because it can never be made to yield maximum crops, while its expense and care is often greater than that of a robust and healthy specimen. Being keenly alive to this fact, we are ever watchful to eliminate all stunted and poorly-grown plants from the nursery rows. A good tree should be well developed in trunk, and especially in root growth. You cannot build strongly and along safe lines unless there is plenty of foundation to carry the tree well when it comes into full bearing. By a good root system, I mean a tree with plenty of fibrous and a strong tap root, in order to give it a foundation on which to develop and grow good crops. The foliage and young wood should possess a healthy and lustrous green color; the leaves should feel slightly thick and leathery to the touch. A tree of this description, properly planted out and given intelligent after care, must prove a good cropper of merchantable fruit.

"That is clear," I replied, "but what about the seedling stocks to which you bud? Is it your experience that the Citrus Trifoliata is destined to be extensively used as a stock to bud onto, particularly in cases where it is desirable to plant trees in the colder sections of the citrus belt?"

"Touching stock to which the budded varieties of oranges have been worked in California, it is probably safe to say that fully seventy-five per cent of the bearing groves are on sweet seedling roots, and since they all do well, it is safe to assume that this root is generally satisfactory. Some ten or twelve year ago, large importations of trees from Florida budded to the sour stock (Citrus Bigaradia) called attention to it with the result that it came somewhat into favor, particularly as a resistant to the disease known as foot-rot (Mal di Gomma), and for planting on soils where the water is close to the surface, and the trees liable to suffer from "wet feet." It has a stronger root development than the sweet stock. Of late years, however, the Pomelo (Grape-Fruit) has become deservedly popular as a budding stock. In root development, it is even more vigorous than the sour stock. So pronounced is the demand for trees budded on this stock that we shall work nearly 75 per cent of our trees to it next year. Regarding the Trifoliata as a budding stock, we have at present some 75,000 plants in the seed-beds, and about 35,000 in the nursery rows, all of which will be budded to the standard varieties. I regard this stock as exceptionally hardy and am of the opinion that it will have a tendency to produce a robust budded tree—one calculated to withstand a lower temperature than a tree budded to the ordinary seedling stock. Being partly deciduous the plant has its dormant periods, which of course means 'hardening up:' it also signifies early ripening of its fruits. Plants of Citrus Trifoliata have withstood the winters of Washington for years without injury, and even in New York, seem to flourish without any protection during the winter months. When budded to the orange and lemon, many have supposed that it would result in dwarfish if not diminutive trees, but

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such is not the case. Budded trees in Florida have attained the height of from 12 to 15 feet, and the same results are noticeable in cases in this state. Varieties budded on it invariably bear young. On its own roots the Trifoliata is desirable as a hedge plant, and particularly as a budding stock for the kid-glove classes. I feel quite sure that budded trees on Trifoliata roots will in the immediate future constitute a feature in citrus nursery stocks."

"Suppose the value of the land is left out of the question what in your judgment would be the cost of bringing an orchard into bearing?"

"Much depends upon local conditions — soil, climate, water, lay of the land, whether the owner and his family are to do the work, or it is to be done with hired labor — that any estimates are quite apt to not apply in every detail. Broadly, however, the cost of preparing and grading the land and planting the trees, will average from \$15 to \$25 per acre; this includes cultivation for the first year. After that, however, cost of cultivation will increase, and be about, according to the amount of labor expended, \$15 to \$25 per acre up to the fourth year. If the orchard has been well cared for, it should pay expenses the third year from planting; by the fourth year it should produce about a box of fruit to the tree; the fifth, one and one-half to two boxes to the tree; and from that time on increase in productiveness and profit to its owner in a corresponding line to the care and attention expended on it. The volume of irrigating water is also subject to some fluctuation governed by local conditions. Usually the amount would be about one inch to 10 acres for the first two seasons; one and one-half inches for the following two seasons; two inches for the fifth and sixth years; after that period an inch to every four acres will be found to be about the right quantity to use on an orchard in full bearing. The expense of caring for an orchard obviously hinges on local contingencies. If in full bearing, allowing for cost of water and labor in supplying same, together with the expense of cultivation, would average anywhere from \$25 to \$60 per acre. Much depends upon the owners resources, environment, and method of carrying on the business.

"And what about the future of the industry?"

"That is best answered by a glance at the past. Last year this state marketed about 19,000 carloads of oranges and lemons, of which the San Joaquin valley sent East all told about 900 carloads and Northern California 500 carloads. This year the output will be somewhat larger. With young orchards continually coming into bearing, the industry is bound to expand and grow with the general development of the country. Take my own immediate neighborhood. Last year the San Dimas Orange and Lemon Growers Association sent East 268 cars, equalling 92,930 boxes, which sold for \$108,108.60. The groves producing this fruit represent about 615 acres of land, 150 acres only of which are in full bearing, the balance of the acreage being younger trees. All of this land is under intensive cultivation and a fine irrigating system. These conditions indicate the stability of Citrus Culture."

"You are sanguine. Do you find the interest in orange culture as keen as ever, and over as wide an area of country?"

"Most decidedly. Our correspondence is not confined to this country, but extends to Cuba, Mexico, Hawaii, The Philippines, Australia and South Africa. Verily the name of California horticulture is expanding. Recently we sent shipments of trees to Australia, Philippine Islands, Hawaii, Old Mexico, Cuba, Porto Rico, Central and Southern America and have orders booked for Africa. This would seem to indicate that California grown trees, coupled with our advance horticultural practice, are certainly winning their spurs wherever commercial fruit culture is practiced."

Casually pulling out my Waterbury by its leather appendage, I found it to be nearing my train time — a fact which the setting sun and the whistle of the west bound train toward Los Angeles duly verified. Bidding the largest grower of citrus trees in the world a hasty good-bye, I soon found myself ruminating on the future greatness of God's country. Verily, how little we know of the doings of the world about us. Southern California shipping citrus trees to every country that will grow the fruit, — well, "the world do move." So does Teague.—[From The California Cultivator, January 23, 1903.

"Japan's contributions to our Citrus Culture include the hardiest orange, viz., the *Citrus trifoliata*."

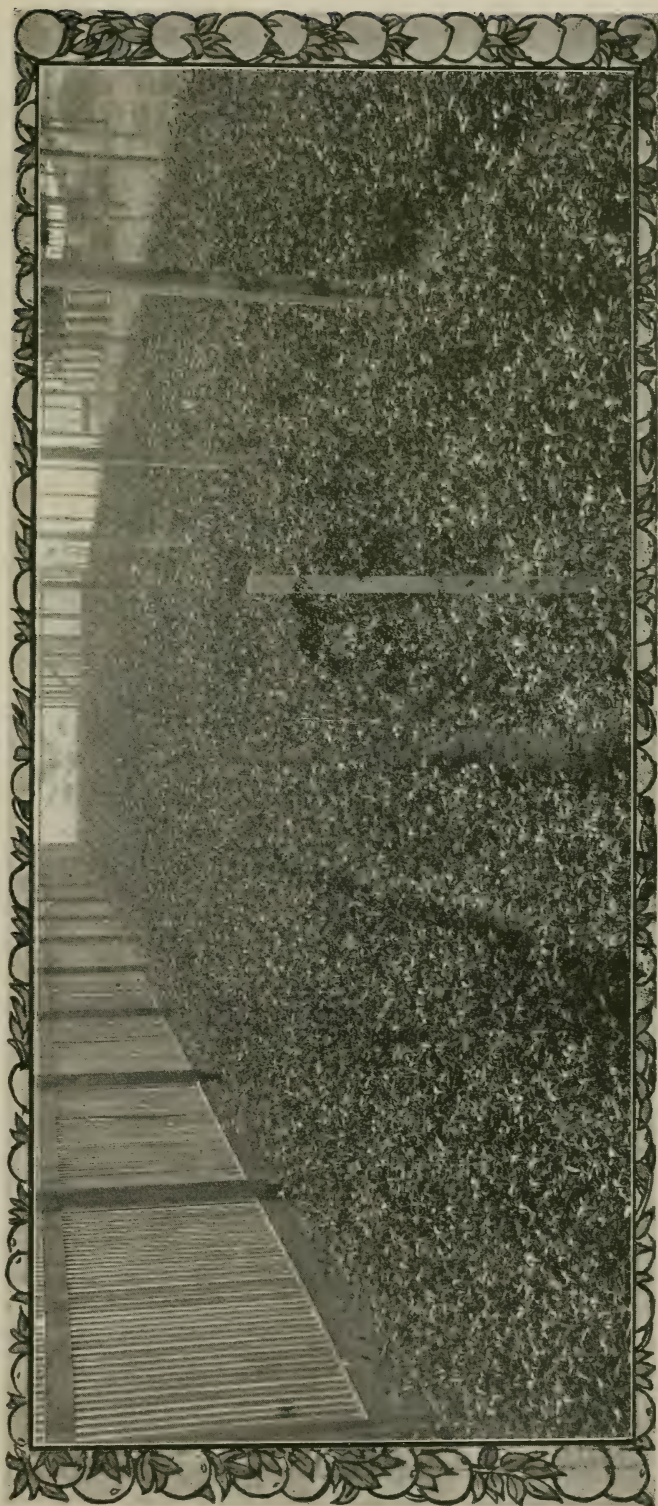


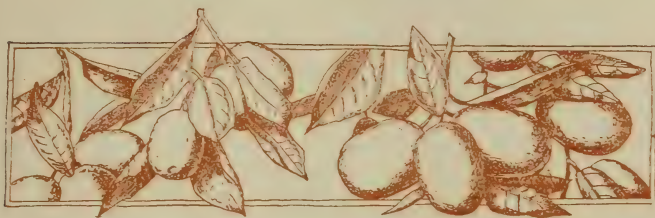
Fig. 4. Seed bed of *Citrus trifoliata*, nine months from planting, showing 75,000 plants, averaging 12 to 20 inches.

"Washington Navel and Trifoliata nodding to the breeze."



1. Washington Navels, 2 years. 2. Trifoliata stock, 9 months.

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“AS IN A LOOKING GLASS.”



THE “Counterfeit presentments” or citrus orchards in all stages of growth and under varying conditions of soils and climates shown in these pages, are of groves in the immediate vicinity and contiguous to the San Dimas Citrus Nurseries,—a locality recognized for its superb fruits. The altitude will average from one thousand to fifteen hundred feet above sea level; the contour of the land is slightly undulating, with a fine drainage from the Sierra Madre mountains to the West; the character of the soil is varying in sections, ranging from a heavy clayey soil to a sandy loam, and from a free and open gravelly soil to a rich granitic. Under cultivation, it is invariably rendered friable by the action of the plow and cultivator, and is peculiarly well adapted to the growth and bearing of citrus fruits.

Fig. 1. A general view of our lath house No. 1, showing 10,000 balled trees preparatory for immediate shipment upon receipt of orders.

Fig. 2. This shows lath house No. 2, containing 4000 lemon trees balled ready for shipment.

Fig. 3. Pomelo seed beds in a lath house covering 150×300 feet, in which are constantly growing 200,000 seedling.

Fig. 4. This shows 75,000 Citrus trifoliata seed bed stock, at nine months from planting, showing an average growth of from 12 to 20 inches.

Fig. 5. The lower view illustrates Citrus trifoliata stock at nine months from planting in the nursery rows, and ready for budding. The upper view shows a block of Navel orange trees, two years old from the bud.

Fig 6. The Kumquat, for description of this fruit see pages 32 and 37.

Fig. 7. This illustration affords a striking example of what can be done by proper planting and cultivation, with second-sized trees, three-eighths to one-inch caliper, planted open roots in May of 1899 and photographed August, 1902. To the person with a comparatively small available capital with which to plant his or her land to the larger trees, this will afford encouragement and confidence to proceed to setting out the second size. This orchard is shown on page 50; third year from planting.

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Fig. 8. The orange is not only king of fruits in Southern California, but actual money to the man owning a well-cared-for grove. The "counterfeit presentment" of this particular grove pictures to the life one of the famous properties of the country. It comprises 10 acres, was planted in 1890, on a rich, decomposed granitic soil to second-size trees, and by reason of care and its fine situation has proven a pronounced success to its fortunate owner. For verification of this statement let us consult the record. In 1892, the crop sold for \$80.00; in 1893 for \$635.00; in 1894 for \$2,780.00; in 1895 for \$2,840.00; in 1896 for \$4,000.00; in 1897 for \$5,300.00; in 1898 for \$4,100.00 (this was the season of heavy wind storms when the trees lost much of their fruit); in 1899, for \$5,830.00; in 1900 for \$6,000.00. Is it any wonder that Southern California ships 30,000 carloads of citrus fruits annually?

Fig. 9. This grove was planted to seedling stock in orchard form, and the following year budded to Washington Navels. In the early days of citrus culture, this method was at times resorted to, because buds of the Navel were scarce as well as expensive, and planters sought to gain time by this practice. The buds were taken from the celebrated Tibbet's, or parent trees. This orchard has been in constant bearing, and is still a valuable possession. At the time the photograph was taken, the grove had attained the age of 26 years, and bids fair to yield the golden globes for another quarter of a century.

Fig. 10. This illustration shows our different sizes of trees ready for shipment. Commencing at the left of the picture *a* shows a one-year bud, caliper $\frac{3}{8}$ to $\frac{1}{2}$ inch; *b*, a one-year bud, caliper $\frac{1}{2}$ to $\frac{5}{8}$ inch; *c*, a one-year bud, caliper $\frac{5}{8}$ inch and all up; *d*, a two-year bud, caliper $\frac{5}{8}$ to $\frac{3}{4}$ inch; *e*, a two-year bud, caliper $\frac{3}{4}$ inch and all up. *A*, *B* and *C* are cut out with 40-pound balls; *D* and *E* are cut out with 60 pound balls. Long experience in growing citrus trees and planting citrus orchards has convinced us that it is always best to conserve and take up as much of the root growth of trees as possible. This is one of the reasons why our trees prove so universally satisfactory when planted. Of course, this often entails some additional expense in transportation, which is invariably more than offset by the fine growth of the tree after planting, as compared to those not so carefully handled in this respect.

Fig. 11. Without man's intervention many of our finest fruits would perish because of themselves not reproductive. Of this fact, the Washington Navel and other fine varieties of the orange are striking examples. This intervention or means of propagating these splendid fruits is brought about by budding onto foreign roots of the same family. In this view is shown a block of 40,000 seedling trees ready for budding, which comprises but one-tenth of the number of citrus trees we now have growing in our grounds. The reader's attention is called to the fine symmetrical and vigorous growth of the trees shown in the illustration—all evincing a root growth well calculated to produce, when budded, orchard trees of the finest quality and of large-bearing capacity.

Fig. 12. This illustration shows what can be done with a first-class one-year bud, caliper $\frac{5}{8}$ inch, balled with a 40-pound ball, planted August 15, 1900, and photographed in January, 1902. The tree immediately in the foreground shows 12 oranges. This orchard is planted to Thompson's Improved Navels.

"Trees with their togs on and in military rows ready for service."

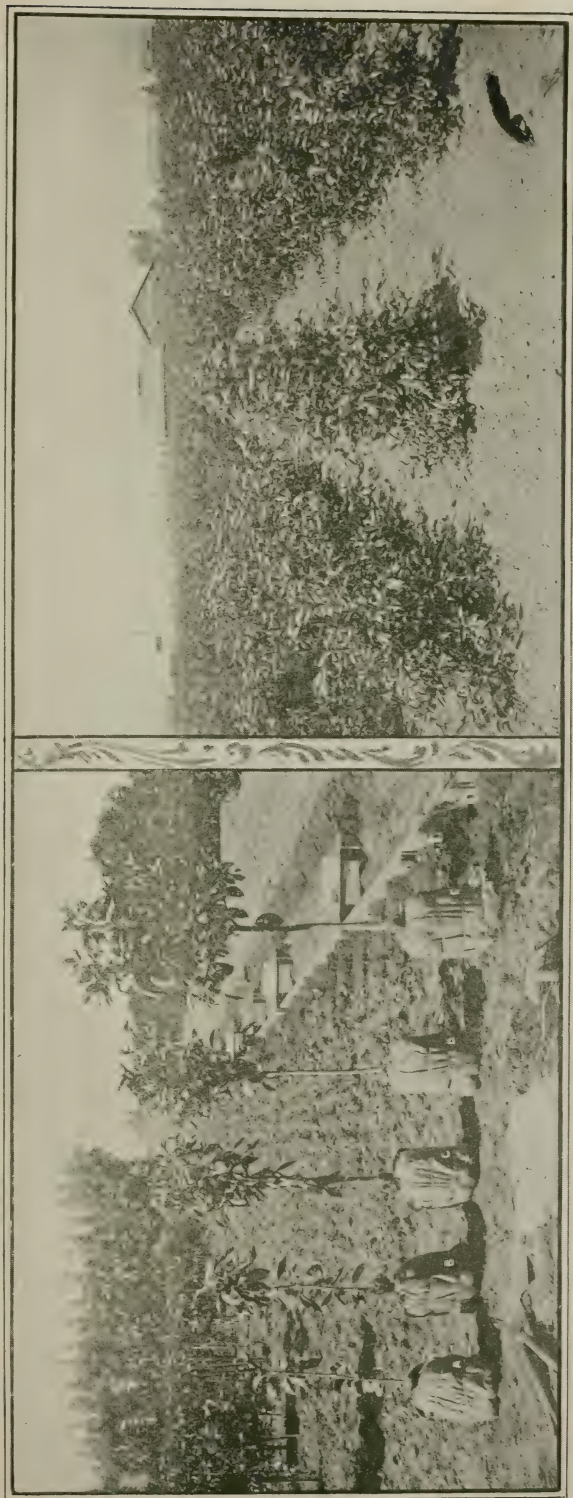


Fig. 10. Commercial sizes of Citrus Trees.

Fig. 11. Block of 40,000 Seedlings second year from planting.

"Vistas of sunlight and shadow in the Orange Groves of the Citrus Belt."

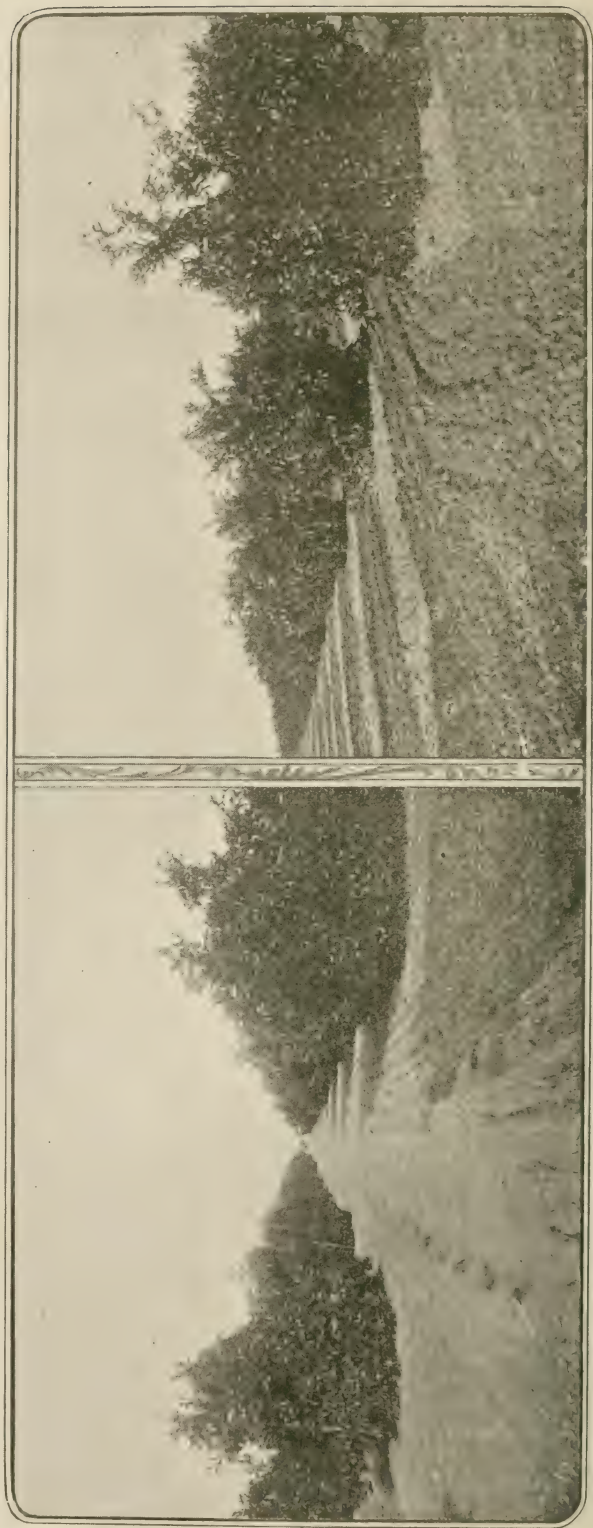


Fig. 25. Navel Orange Grove seven years old.

Fig. 26. Navel Orange Grove five years old.

The Largest Citrus Nurseries in the World

Fig. 13. The area adapted to profitable lemon culture, and the production of a superior fruit, is possibly not quite so extensive as that of the orange, nevertheless there are many situations in California in which the lemon finds congenial soils and climates. Our illustration affords an instance in point. This grove is situated along the thermal belt in the San Gabriel valley. The soil is of a gravelly formation, and the elevation about 1000 feet above sea level. The trees are planted 24 feet apart on the square, and number all told 180. Seven years from planting, the crop harvested from November 10, 1899, to November 10, 1900, inclusive, sold for \$1,030.86. The fruit was picked once each month, and delivered to the packing house in a green state.

Fig. 14. This is indeed a fine view of a remarkable orchard, and exemplifies forcibly what intensive culture and liberal and intelligent fertilization and irrigation will do. Note the strong, umbrageous growth of the trees, the manner of pruning, the density of foliage and prolificness of the fruit—all tending to show the lemon at its best. This grove is one of the sights of North Ontario, and has probably yielded larger crops of a greater money value than any other ten acres of lemons of which the writer has any knowledge. The variety is the Eureka.

Fig. 15. The commercial importance and solidarity of citrus-fruit culture is quite strongly indicated in the views shown in Fig. 10 of the packing and shipping buildings of the San Dimas Citrus Union and Lemon Association, forming an integral part of the Southern California Fruit Exchange. Other citrus fruit growing sections enjoy similar accommodations, all of which emphasize the strength of the industry.

Fig. 16. This view gives an idea of the early fruiting characteristics of the Naval orange when left to its own sweet will. The trees in the foreground contain upwards of 20 fruits, while one tree in the row, but not discernible in the picture, gave an unprecedented yield of 30 individual oranges. Specimens of this fruit were submitted to the experts at the Los Angeles Chamber of Commerce, who pronounced it of a remarkable fine quality.

Fig. 17. In the growing of first-class nursery trees, care must be exercised in training the bud after the seedling tops are cut off. This we do by systematically removing all suckers and carefully training the bud to a stake by persistent tying, in order to induce a straight and symmetrical growth. At the proper stage, the bud is cut back, as shown in the illustration, to produce a branched top. The view shown on page 42 (Figs. 28-29) gives a clear idea of our trees after the head is properly developed.

Fig. 18. Nine months is but a short period in the growth of an orange tree, nevertheless in the case of this grove of 2600 Navel trees it demonstrates what our trees will do. This grove was planted in April, 1900, with trees of $\frac{1}{2}$ inch caliper balled, and photographed in January, 1901. The vegetation shown under and about the trees in the half-tone engraving is green barley, sown for a green manure for turning under with a plow. This same orchard is again pictured in Fig. 18, photographed in August, 1902, showing a growth which must be considered as phenomenal in that short intervening space of time.

Fig. 19. Not unlike the trees pictured in the opposite view, this shows Washington Navel trees planted in May of 1900, to two-year buds, $\frac{3}{4}$ inch caliper and up, balled with 60 pounds of soil, and photographed in January, 1901. The growth covering the ground in the orchard represents field peas, sown for green manuring.

The Largest Citrus Nurseries in the World

Fig. 20. This picture shows money. It represents a four-year-old Navel grove yielding a packed box of fruit per tree, a record to be proud of, and one considerably above the average. The situation, the soil and the care have all been exceptionally favorable, which gives it a great future as a splendid investment. It demonstrates beyond a doubt that when intelligently applied citrus culture is a safe and profitable investment, and that trees become a source of income after being set in orchard three years.

Fig. 21. Among the varieties of orange destined to a popularity, based on purely commercial considerations, must be mentioned the Valencia Late. Ripening when the market is clear, and ranking next to the Navel in quality, it must always be in good demand. Many of the best-paying groves are planted to this variety. The illustration represents a fine eight-year-old Valencia Late grove at San Dimas, which produced \$7 per tree in 1900.

Fig. 22. For the information of growers contemplating rebudding orchard trees to other varieties of fruits, we show a lemon tree rebudded to Thompson's Improved Navel, April 10, 1899, and photographed in January of 1901. Those not familiar with the subject are quite apt to believe that rebudding and subsequent fruiting is a matter of slow growth, yet here is a case where a lemon tree has been converted into an orange tree, and brought into bearing in less than two years. Needless to add, that in the light of these results, many of the older orchards hereabouts have been rebudded to more desirable varieties. So pronounced is this practice that the original groves are being supplanted by Washington Navel and other more desirable sorts. It only again illustrates the law of the survival of the fittest—like in other lines of production, it is only the best which is capable of holding its own in the markets of the world.

Fig. 23. The pruning of fruit trees is a controversial subject, and many growers possess many opinions and methods, each claiming his the best. The illustrations of a Villa Franca lemon tree affords an example of the method generally pursued in the orchards of this establishment. Its objects are (1) to produce plenty of fruit-bearing wood; (2) to create an umbrageous head, affording shade and protection from the burning rays of a Southern California sun; (3) to induce a bountiful and regular crop of fruit, as indicated in the picture.

Fig. 24. The prolificness of the Pomelo is proverbial, and among the numerous sorts none is more so than Marsh's Seedless. It is conceded by both fruit dealers and shippers, as well as the epicure, that this is a splendid variety, by reason of its being practically seedless, of uniform size, good shipping qualities, fine flavor and regular bearer. The truth of its productiveness is amply proven by the half-tone engraving, which shows a tree but four years from the bud.

Figs. 25 and 26 depict the general appearance, character, habit of growth and productiveness of well-cared-for and typical Washington Navel orange groves in the heart of the citrus belt of Southern California.

Fig. 27. The glory of the Washington Navel orange, as we know it in California, is here strikingly typified. The illustration is indeed one of nature's prime productions, being photographed direct from the tree as the branches and fruit appear. The finely-shaped fruit, its superb size, prolificness and general character and habit of tree is here shown as it is usually seen in the well-cared-for orchards in the San Gabriel valley. As is well known, the orange shipments at the beginning of the season consist chiefly of Washington Navels, over one-half of the output being of this variety, which continues in the market until late in the spring months. The Navel is indeed the king of oranges whose supremacy there is none to dispute; it is also shown in all its glory of fruit and foliage in the half-tone illustration.

"Row upon row of Lemon trees laden with fruit embellish the landscape."



Fig. 14. North Ontario's Famous Ten-Acre Lemon Grove.

"The Orange and the Lemon vieing with each other in the production of wealth."

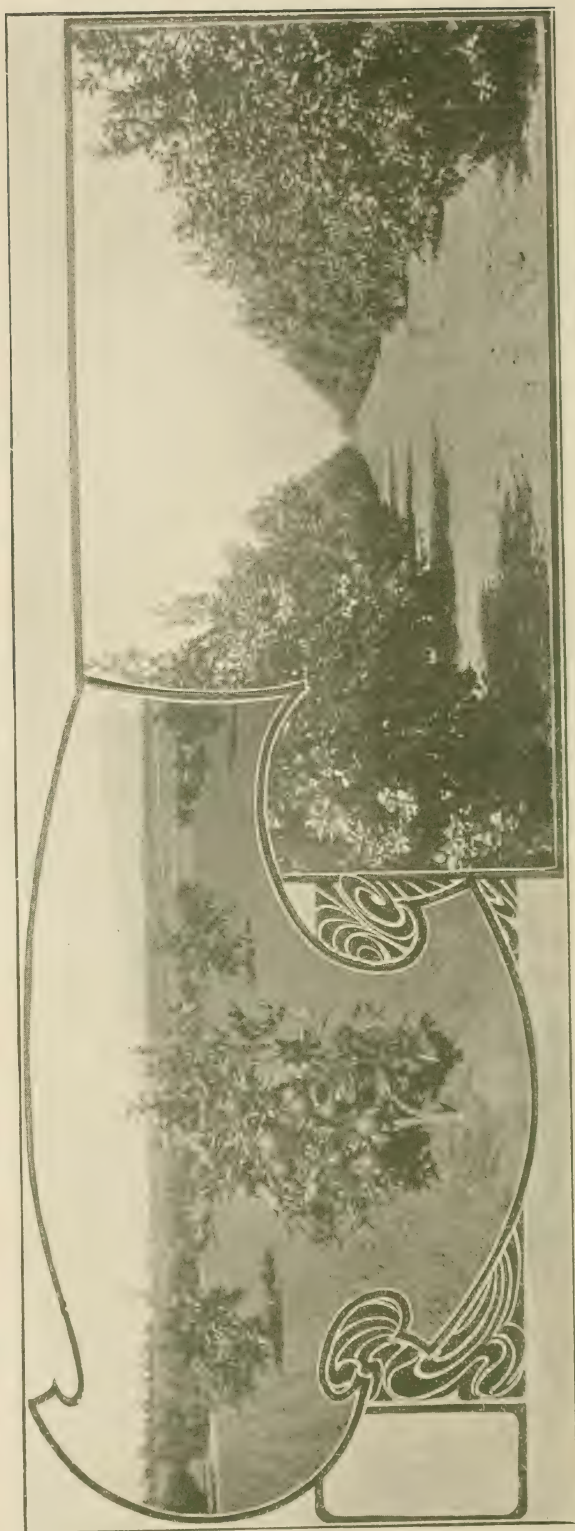
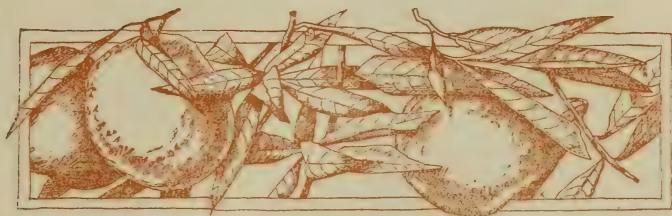


Fig. 12. Thomson's Navel Orange Grove $\frac{17}{17}$ months from planting. Fig. 13. Eureka Lemon Grove seven $\frac{17}{17}$ months from planting. years

The Largest Citrus Nurseries in the World



TO PURCHASERS.

HOW TO ORDER.—State specifically the size and variety of trees you want, and also give a few general hints as to your soil and climatic conditions. From unknown parties we demand a remittance or deposit of 50 per cent of order, or good references. Send money or bank draft, postoffice or express order, or registered letter.

LOCATION.—The land upon which our nursery is situated is conceded to be the best for growing citrus nursery stock, producing a fine grade of tree, with a root system of great vigor, making transplanting safe and easy.

QUALITY OF STOCK.—All of our trees are grown to stakes, and are straight and thrifty, budded at the ground and well rooted. Good stock is the foundation of success. He who plants an orange or a lemon grove plants for generations; hence, in choosing stock be careful to get only the best obtainable.

GUARANTEEING TREES.—We guarantee all trees shipped from our nurseries to be as represented. We personally attend to the budding of all our trees, and use the utmost care to insure them true to name.

PACKING.—We pack all trees in the best possible manner, in bales and boxes, according to size of order and distance of shipment. Trees can be sent with safety to any part of the United States or foreign countries. We make a small charge for packing, just sufficient to defray cost. Sample trees furnished intending buyers.

TRANSPORTATION FACILITIES.—Our transportation facilities are excellent, being midway between the Southern Pacific and Santa Fe railways; hence we ship via either road.

SHIPPING INSTRUCTIONS.—Please furnish explicit directions for shipping and by what route. In the absence of any instructions we ship according to our best judgment, but in no case do we assume any responsibility for condition or safe delivery of trees after same have been properly packed and delivered to transportation companies.

PRICES.—The matter of price depends somewhat on size of trees, quality of stock, variety of fruit, etc. We sell according to condition of stock and the customer's wants. We grade our citrus stock by caliper, measurement being made one inch above the bud, and thus are able to offer any size that is required. We have buds one, two, and three years old. We have citrus trees of all grades and at all prices and are able to meet competition from whatever source.

The Largest Citrus Nurseries in the World

PLANTING.—This may be done from February to August, in very warm and sheltered localities. Early planting generally gives the best results. Trees are planted balled or with bare roots, according to the ideas of the buyer. The tree should be set slightly deeper than it stood in the nursery. Holes should be sufficiently large to admit of the roots being spread out in their natural position. Do not let the earth turn them down in a mass around the tap root. Cut off all broken or bruised roots. Top soil is best for filling in. The soil should be worked in well around the roots and irrigated immediately. Distribution of trees to the holes in advance of actual setting is a pernicious practice, as the roots quickly become dry. Keep them constantly covered with moist packing.

AFTER CARE.—No tree responds so quickly to intensive culture as the orange or lemon, and hence careful and frequent cultivation will be found essential to profitable production. Indeed, the soil should be thoroughly communited, friable as an ash



heap. See to it that the trunks of the trees are well protected from the burning rays of the sun. Yucca tree protectors, burlap, or even heavy paper well tied will serve the purpose. We recommend the first mentioned. Having attended to these essentials, see to it that the orchard is well and judiciously irrigated at regular intervals. Thorough culture and careful watering will insure success, as citrus trees require but little pruning. The tree should be trained to form a symmetrical head. To do this, cut out the dead wood, interfering branches, and suckers. Lemons require much more

severe cutting than the orange or grape-fruit; the treatment given deciduous trees, but less severe, will be about correct. Frost is an element of some risk in the shipping of citrus trees. Being situated in the thermal belt of the San Gabriel valley and making citrus trees an exclusive business, we feel sure of the condition of our stock at the time of shipment; nevertheless, we desire to call attention to the fact that in accepting orders previous to time of delivery we cannot be held liable for the delivery of such trees should they be damaged or destroyed by the elements.

SOIL AND CLIMATE.—The cultivation of the orange and lemon covers all tropical and sub-tropical regions, and in so far as general characteristics are concerned, the many divers varieties under different names in different localities, are much alike in habit of growth and tree. In spite of this fact, however, Southern California has become distinctively the home of certain kinds which are peculiarly adapted to her soils and climates. In selections of buds we use the utmost care, and never take buds removed more than a generation or so from the original or parent stock, thus our Washington Navel buds are all taken from original orchards budded directly from the parent trees, which are still bearing bounteous crops in Riverside on the Tibbets place. These sorts have become standard in the markets of the United States, and in the line of their importance are mentioned in the following list, which comprises the varieties of trees we grow and carry always in stock:

"Yea, verily, the Orange is the King of Fruits in Southern California."



Fig. 20. Four-Year-Old Washington Navel Grove.

Fig. 21. Valencia Late Orange Grove in Full Bearing.

"Citrus Trees for the Million,— a veritable sea of nursery trees in rows and going to intending planters everywhere."



1. A Plot of Citrus Trees on our Home Grounds.

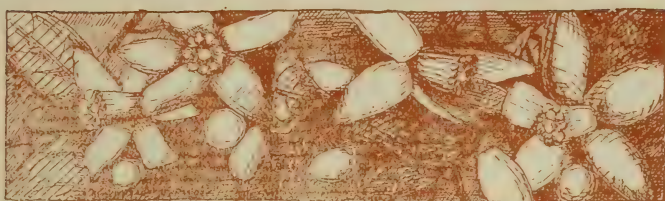
2. A Daily Scene during the Shipping Season at San Dimas.

"A Washington Navel Orange Grove is a Veritable Mint in the coining of 'Yellow Stuff.'"



Fig. 8. A Washington Navel Orange Grove with a Record.

The Largest Citrus Nurseries in the World



STANDARD VARIETIES.

THE ORANGE.

WASHINGTON NAVEL.—This is the most valuable orange known. Tree of moderate growth with small thorns. Full, well-rounded top; dark glossy foliage. Blooms heavy and in California is one of the best and most regular bearers. Bears young, generally in the third year from planting, and sometimes in the second. Fruit large to very large; skin generally smooth and thick, of full orange color, and peculiarly marked at bloom end, where a small irregular secondary orange is formed, imbedded within, some times protruding from the segments of the fruit. The orange is seedless, flesh crisp and sweet, and flavored with some bewitching secret of its own — no other taste to describe it by. Season early. Shipping qualities of the best.

THOMSON'S IMPROVED NAVEL.—In character and habit closely allied to the Washington Navel. Fruit of medium size, smooth and thin-skinned, good flavor, and comes into bearing early. Those desiring a thin-skinned, early Navel for the holiday trade will not go wrong in selecting this fruit. By this is not meant that its season is limited to the holidays, quite to the contrary, its keeping qualities are equal to those of the Washington Navel. Its splendid appearance, fine texture of peel, superb color and eating qualities render it an especial favorite among consumers during the Christmas and New Years festivities, when it invariably commands the market at good prices.

VALENCIA LATE.—Tree of very fine and vigorous growth; light thorns. Early in bearing and prolific. Fruit of medium size, oval, solid, heavy. Light color. Skin rather thin and of strong texture. Flesh of deep and very rich color, grain fine, firm and crisp; abundant juice; excellent flavor, the quality that suits the hot months. Season latest, being prime after other varieties become stale, and maintaining fine quality through summer and autumn. Of best shipping quality and reaches the market when there are no other oranges to compete.

RUBY BLOOD.—Medium size, nearly round; skin thin but very tough; pulp melting, rich, juicy. As the fruit ripens it usually becomes streaked or mottled with blood red, often the entire pulp gets ruby red, showing through the peel in a reddish blush on the outside. One of the best blood oranges. The tree is vigorous, nearly thornless, and a regular bearer.

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MEDITERRANEAN SWEET.—Thornless, low, spreading tree; very productive. Fruit oval, medium to large; rich orange color; inclining to thick skin. Season middle to late. Shipping quality of the best.

PAPER RIND ST. MICHAEL.—Tree vigorous and of excellent habit; light thorns; heavy bearer. Fruit small, round, very solid and heavy. Skin thin, smooth and of a very fine texture; color pale, almost lemon; membranes thin; grain fine; most abundant juice; sprightly, excellent flavor. A general favorite. Season middle. Shipping quality best.

MALTA BLOOD.—Ripens just as the Navel is getting late. Trees of slow but persistent, upright growth, and disposed to bear in clusters on terminals; a heavy bearer; fruit oval, seedless, with peculiar refreshing and acid flavor; pulp usually splashed with crimson streaks, sometimes almost solid crimson, though when grown in shade it is often but slightly colored.

SWEET SEVILLE.—Medium to small; a good keeper and shipper. Tree vigorous and prolific. Ripens very early.

GOLDEN VARIEGATED.—An ornamental sort with beautifully variegated foliage. A novelty in citrus culture.

BOUQUET DES FLEURS.—An ornamental variety of French origin, possessing a very thick and leathery foliage, of a light green color.

KUMQUAT OR KIN-KAN.—This unique and curious member of the citrus family, commonly called Kumquat in this country, is a native of Japan, where it is known as Kin-Kan, which means gold orange. Kumquat is Chinese for the same meaning. It bears in great profusion a small and very handsome, deep yellow fruit. There are two kinds, alike in tree and differing only in size and shape of the fruit. The Marumi bears a round fruit, from three-quarters of an inch to an inch in diameter; the Nagami, an oblong fruit somewhat larger. The latter is the kind commonly seen in this country, is rather more desirable on account of the large size of its fruits, and is the one we offer. The whole fruit, rind and all, is eaten, and people become very fond of them. The sweet rind and agreeably acid pulp makes a piquent combination relished by most palates. Preserved in sugar or crystalized the Kumquat, wherever it is known, is deservedly popular.

DANCY'S TANGERINE.—Unlike most of its family this bears the broad leaf, much like the common orange. Ripens with the Navels; deep reddish color; skin free from flesh, and segments cleaving free, as in other "kid-glove" oranges. Meets a special and limited demand—often at the very highest prices. The tree makes a beautiful appearance, with its small, intensely-colored fruits. The standard variety of its class.

KING.—Very large, flattened, and with loosely adhering rind and segments, like all the Mandarin varieties; color orange-red; skin rough, but general appearance fine; juicy, meaty; its high and peculiar aromatic flavor is very agreeable. Quality very best. Tree upright, strong grower, foliage dark and rich. March, April and May; keeps in good condition even later.

SATSUMA (*Oonshiu*, *Kii Seedless*).—Medium, flattened; the color is not red, like the King and Tangerine, but a deeper yellow than the Mandarin; rind and segments part freely; flesh fine-grained, tender, juicy, sweet and delicious; entirely seedless; one of the earliest sorts known; fruit ripens as early as November. Tree thornless and bears young.

"Where the golden globes gleam in their foliage."



Fig. 27. The Washington Navel in all its Glory.

"A Trio affording object lessons in an enlightened citrus culture."



Fig. 22. Lemon Tree re-budded to Navels.

Fig. 23. Well Developed Lemon Tree.

Fig. 24. Marsh's Seedless Pomelo.

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THE LEMON.

EUREKA.—Tree nearly thornless, of rapid growth, and prolific bearer. Fruit of the best quality; a general favorite.

VILLA FRANCA.—A strong growing variety; thornless, or nearly so; fruit oblong, juicy and nearly seedless. Sweet rind. Standard.

LISBON.—Tree of largest growth; thorny. Size of fruit medium. Sets well in the limbs. Fruit oblong with prominent point; color bright; rind of medium thickness and of soft, excellent texture, giving with the strong membranes high keeping and shipping qualities. Abundant juice; acid very strong and flavor fine. A standard variety.

LIMES (*Mexican*).—The lime should be more extensively planted. It makes an excellent hedge, or the plants can be grown in orchard form. The lime juice of commerce is the product of this fruit. The Mexican is a variety extensively grown in Old Mexico.

TAHITI—Said to be almost as large as the lemon. Very juicy and of best quality.

THE POMELO OR GRAPE FRUIT.

MARSH'S SEEDLESS.—Medium size (will pack 54 to 62 to box.) Thin rind, with about half the usual bitter. It is a true grape fruit and not a hybrid, with all the characteristics of the common varieties, with the exception of being almost absolutely seedless. Sometimes you will find a fruit containing three or four shells of seeds, but as a rule it has none at all. With the absence of seeds, the amount of juice increases, the flavor improves and the fruit retains its noted qualities, and the pulp or meat is dark and rich. In serving this fruit you are not required to remove from 80 to 90 seeds, as it is necessary with our common grape fruit, but is ready for the table when cut in halves. The fruit is known to be a late keeper. The fact of its not having seed, that germinate when left late on the trees or in storage, increases its keeping qualities to a great extent and is another factor greatly in its favor. A three-year-old bud will bear all the fruit it should hold at that age.

TRIUMPH.—Medium; peel smooth, clear, thin and fine grained; less "rag" than in most grape fruits, and fewer seeds; very heavy; juicy and well flavored. There is no bitter in the juice, flesh or membranes surrounding the cells and dividing the segments, and very little in the white inner lining of the peel. Tree bears young and is prolific. One of the best of the improved varieties.

IMPERIAL.—Something similar to the Triumph. It is pronounced by experts to be the very best variety yet tested.

IMPROVED.—An improved Florida seedling of good merit. Tree thornless or about so, bears young.

THE CITRON.

CITRUS MEDICA CEDRA (*The Citron*).—This is the true citron of commerce, from which an essential oil is obtained. The rind, when cured, is known as "citron rind" or "succade."

The Largest Citrus Nurseries in the World

NEW INTRODUCTIONS.



THE first two varieties of the ever-popular Navel orange mentioned below are the product of our propagating ground and the result of careful selection and training. We are convinced they possess advantages over other Navel oranges, hence beg to announce that we have trees to offer for this planting season. We fully believe the Golden Nugget and the Golden Buckeye Navels are destined to be the greatest additions to citrus culture in Southern California since the advent of the Washington Navel in the early 70's. The Navelencia mentioned last is also commanding attention, and is really worthy of consideration on the part of intending planters.

THE GOLDEN NUGGET NAVEL.—This is a new variety which we have been experimenting with in our propagating grounds for some time past, and which we fully believe will prove an agreeable surprise to planters as well as shippers. Indeed, so confident are we of its future, that we are now offering the trees in commercial quantities. The parent tree, which has fruited sufficiently to test the fruit as to quality, shows a development much like the Washington Navel, being a vigorous grower, of good habit, and thornless. In appearance the tree possesses features peculiarly its own, by reason of its exceptionally dark green foliage, abundant lateral or fruiting branches, and fine symmetrical appearance, making it distinguishable at sight in a grove with other varieties. The foliage is more lanceolate than that of the Washington Navel, and in color a shade darker, not quite so broad nor apparently quite so thick and leathery. The wood growth, particularly the younger branches, are more slender and willowy, which makes the tree rather umbrageous. The fruit is very smooth, solid and thin-skinned, very much more so than the Washington Navel, even at its best; of fine texture, the exterior strongly suggestive of kid gloves to the touch, smooth and even surface; color a strong gold; shape rather oblong, good size; fruit exceptionally free from rag and is seedless; flavor delicious, bears young, generally second year from planting; a good shipper and keeper; ripens early and packs about 90 per cent fancy fruit, rendering it in every way desirable for holiday trade.

THE GOLDEN BUCKEYE NAVEL.—A candidate for horticultural honors that is sure to be heard from. The tree is a good grower, thornless, leaves lanceolate, much more so than the general run of orange trees, and only slightly serrated; dark green in color; new wood inclined to grow slender but of good strength; general habit and appearance of tree strikingly individual; a pronounced characteristic of the fruit, which makes it distinct from all other varieties of Navels, is a series of bands or ridges of a deeper orange color, which adds much to the beauty and renders it more than any other variety, peculiar to itself; smooth and of a kid-glove texture; flavor strongly aromatic, with a suggestion of pineapple to the taste; pulp of fine texture with but few segments, thus affording a melting and soothing sensation to the palate; almost entirely free from rag; packs 90 per cent fancy; is a good keeper and shipper; while its exceptional earliness gives it a commercial value of first importance.

THE NAVELENCIA.—A new variety that is commanding some attention from growers. It is said by the originator to be a cross between the Thomson's Improved Navel and the Valencia Late, for it is claimed the good qualities of the former, together with a lateness in ripening which makes its season from 30 to 60 days later than the Washington Navel, thus affording a market of its own between the marketing of the Washington Navel and the Valencia Late. Tree of good growth, small thorns, full well-rounded top, dark glossy foliage, in character and habit closely allied to other Navels; fruit of good size, smooth and thin-skinned, and comes into bearing second year from the bud.

The Largest Citrus Nurseries in the World

"A Novelty in the Kid Glove class."



Fig. 6. The Kumquat.

This illustration shows the Kumquat at its best, and is emphatically a tree rather than a shrub. As shown elsewhere in this catalogue there are two sorts, the Nagami and Marumi. The fruit of the Marumi is round and about an inch in diameter, while that of the Nagami is oblong and somewhat larger. The above illustration shows a fine specimen tree of the Nagami, which is the favorite in Southern California, being planted chiefly for ornament. Tree handsome; branches slender, thornless; leaf small, narrow, oval, almost lanceolate; very productive. Fruit oblong, and about an inch in diameter; on the whole larger and more desirable than that of the Marumi.

"Beyond its majority, and still making money."

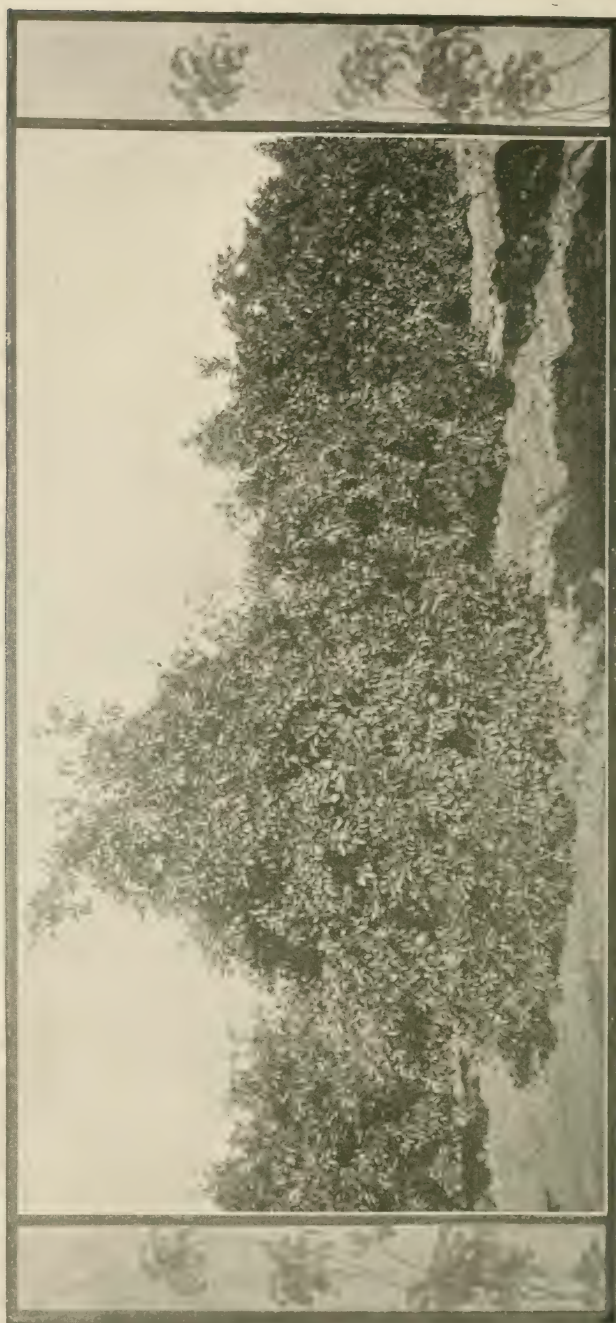


Fig. 9. One of the oldest Washington Navel orchards, twenty-seven years from budding.

IRRIGATING A CITRUS ORCHARD.

THERE are three methods in practice in Southern California, viz., the furrow, the basin and the zig-zag systems.

Our illustrations give a clear idea of the practical working phases of each. As the name implies, the furrow system consists of several furrows plowed between the rows of trees, and down these the water is allowed to flow gradually until the ground is

thoroughly saturated. In furrow irrigation the water should be allowed to run very slowly in order to percolate through the soil to a considerable depth and at the same time prevent its washing down and leaching out the ground.

The basin system consists in each tree being basined, an operation usually performed by a plow or what is known as a blocker or ridger, which consists of a V-shaped implement made of wood and iron or iron alone. This throws up a ridge or an embankment of earth around each tree, which is allowed to fill with water from the main furrow, once or twice. In this way the whole grove is treated, each basin being filled independently from the main furrow between the

rows of trees which tap your main supply ditch. See pages 52-53.

The zig-zag system is an improvement on the basin system, and consists in the orchard being first cross-furrowed, then ridged lengthwise, as indicated in illustration (see pages 52-53). Its chief advantages consist in obviating a baking of the soil by not covering the entire surface of the ground with water, thus affording sufficient dry earth to make a mulch when cultivated over the entire irrigated surface (an operation which can be done sooner after irrigation than in the basin system.) This leaves the soil friable and at the same time conserves the moisture in the ground, which obviously is a great advantage over the basin system.

It is an axiom among fruit growers in Southern California to first find your water and then look for a good piece of land on which to put it. This illustrates the importance of a reliable supply of water for irrigation purposes when planting and cultivating an orange grove. Indeed, in the climate of California, portions of Old Mexico and far-off Australia and South Africa, citrus culture is only feasible where there is an available water supply with which to carry the trees over the dry season.



The Largest Citrus Nurseries in the World

CONCERNING FERTILIZERS.

EXPERIENCED growers know that orange and lemon trees are gross feeders, and hence respond quickly to an application of plant food to the soil. In California, and for that matter, in the arid regions quite generally, the soil is naturally rich, and when the tree is planted on virgin ground, it will do well without any application of fertilization for the first few years; after that, however, some recognition must be given the orchard in this regard. Its extent and character is obviously a matter of local conditions, to which the intelligent grower will give careful attention, and act in compliance with the best practice of the successful and experienced growers in his locality. In sections where the soil is shallow it is expedient to apply a fertilizer every year from the time the orchard is planted. In the rich soils of California, it has been found that nearly all the subsidiary elements of plant food are present, and hence only the four leading elements must be supplied, viz., nitrogen, phosphoric acid and potash, and in rare cases lime. These must be replaced in the soil of orchards, subject to constant cropping. The intelligent grower, therefore, will be quite apt to see to it that his trees do not suffer for the want of nitrogen, phosphoric acid and potash, because these are the elements which the crop annually draws from the ground, and which must be replaced. A tree cannot give best results unless well fed.

The experience of orange growers indicates that the quality and quantity of the fruit may be very largely controlled by fertilization, and as oranges are purchased entirely upon their appearance and quality, this becomes a very important consideration throughout this region. Fertilization should be carried on with but one object in view; that is, of feeding the plant or tree.

Touching kinds of fertilizers and values of stable manure, a report to the Riverside Horticultural Club on this subject contains the following suggestive paragraph:

"The question of fertilizers for the orange orchard has in some form been almost continuously before the club. What kind of fertilizers are the best, and how and when they should be put on? are questions often asked, but never as yet answered to the satisfaction of all. It is known that the different commercial fertilizers on the market are good, and than freely applied they generally give satisfactory results. But growers believe that they are too expensive, and that by buying the chemicals and doing their own mixing, or by applying the chemicals in suitable quantity to the soil without mixing, they may reduce the expense about one-half. There is a growing conviction among orchardists that stable manure is one of the most valuable fertilizers, when it can be secured at reasonable figures. One small Navel orchard in Riverside, fifteen years old, a part of which has been fertilized exclusively with stable manure, has borne regularly, and the fruit has been fully up to the average standard in quality."

The Largest Citrus Nurseries in the World

"The Budding Bud properly Budded."



A Perfectly grown Budded Citrus Tree.

The above illustration pictures to the life a budded citrus tree grown by this establishment, showing a perfectly shaped head to produce a first-class and profitable tree when planted out. It is a one-year-old-bud, which affords a splendid object lesson of the high-grade orange and lemon trees in all the standard varieties we are now offering.

"Good wine needs no bush, and good trees speak for themselves."



Fig. 17. Budded Trees "Topped-Off" to force "Heading Out."

Fig. 16. Thomson's Navel fruiting three years from bud.

The Largest Citrus Nurseries in the World

CULTURAL SUGGESTIONS.

NATURALLY, it will be impossible to insure absolute commercial success by printed rules and suggestions which shall enable those about planting citrus fruit orchards to have their expectations even moderately realized; nevertheless, there are certain essential conditions which cannot be overlooked, to which the following paragraphs forcibly but briefly refer:

SOIL AND SITUATION.—The following from Wickson's California Fruits will be found a safe guide, which gives a general idea as to soils, climatic conditions and water supplies essential to successful citrus fruit culture: "The soil should be a rich alluvium formed from granite and limestone. A hard-pan subsoil should be avoided, while strata of sand and gravel are objectionable. A red subsoil, commonly called clay, formed from disintegrating granite, well rotted, is best. The subsoil should be fine, but of a nature to allow water to pass freely through it. It should be deep and rich, with water not less than 30* feet from the surface. The surface soil should be of a sandy nature, so as not to bake after irrigation. Coarse sand and granite are not objectionable on the surface, provided the subsoil is right. A sediment surface is good; in fact any kind of soil easily pulverized. The surface of the country should have a southern exposure, and, better still, be backed on the north by high hills, and should be reasonably free from winds and frost. The hotter the locality the better. An altitude from 800 to 1600 feet is best. Be sure to have an abundance of water that can be relied upon for irrigation—at least one inch to every five acres of orchard; more will be needed when the orchard grows old."

PREPARING THE LAND.—The following excerpts are from the same authority: "Preparation of land by deep and thorough cultivation and laying off to secure straight rows by the square, quincunx, and hexagonal methods, should be carefully observed. * * * The orange, in common with other evergreen trees, is exceedingly sensitive to exposure of its roots, and for this reason the handling of the young trees is very different from that of ordinary orchard trees. * * * Exposure of the roots, or careless planting, will consign the tree to a slow, sickly growth, and often kill it outright."

A WORD OF CAUTION.—In planting an orchard, no matter whether it be citrus or deciduous fruit trees, too much care cannot be exercised in securing trees known to be true to name, of vigorous constitution, and so grown as to produce maximum crops when arriving at the bearing age. The victim of untrue-to-name citrus trees has indeed a sad experience, and suffers no end of loss and vexatious delays. In the first place, the cost of the trees and the attendant expenses are items for which no adequate damages are ever recovered; in the second place, the loss of time—in the cases of the orange and the lemon usually from two to four years—labor and expense of irrigating and culture are a severe strain on even the resources of the well-to-do; and finally, the disappointments are quite apt to be so trying as to drive the man who plants untrue-to-name citrus trees out of the business. In no case does Davy Crockett's celebrated aphorism, "Be sure you are right, then go ahead," apply so strongly as in the selection of citrus trees true to name, when planting an orchard. Hence avoid the irresponsible dealers and growers, and buy only of old and well-established institutions.

* NOTE.—In the light of later experiments, covering a wide range of soils, it has been found that citrus trees budded to the sour stock (*Citrus Begaradia*) or *C. trifoliata* will do well on soils where the water is close to the surface.

The Largest Citrus Nurseries in the World

THE TREES.—In making a selection of your trees, be careful to secure only the best; a poor specimen is an expensive luxury even as a gift, and will never repay cost of care and cultivation. Bear in mind that we put out only clean, healthy, well grown and vigorous stock, true to name and up to every requirement calculated to produce with reasonable care and cultivation, profitable crops of merchantable fruit. This purchasers can always depend on. Our total acreage in trees is now over 100 acres, all of which is devoted exclusively to citrus trees of our own growing. Our total number of stock for this year aggregates about 125,000 trees, while for 1904 we expect to have a total number of 175,000, and for 1905 fully 225,000.



The Square System.

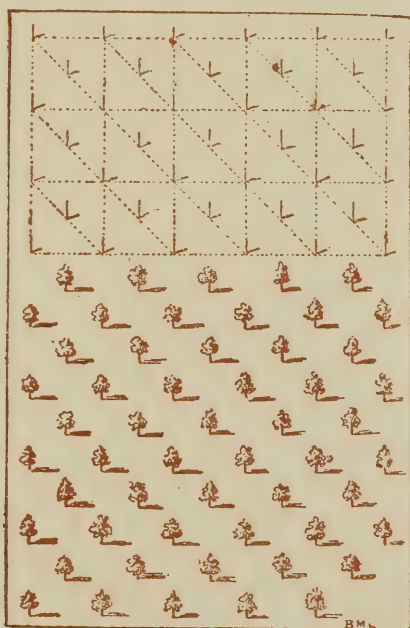
SETTING OUT THE ORCHARD.—Having the right kind of soil in the proper condition, with true-to-name and well-grown trees, we may with safety proceed to plant. In doing so, exercise care in having your orchard symmetrical in order to economize the area to be planted. There are several methods or systems whereby this may be attained, and in order to make them clear and better understood, we here present illustrations of square, quincunx, hexagonal and triangular methods.

THE SQUARE SYSTEM.—This is the most approved method. The orchard is laid off in lines crossing each other, with equal intervals of space, and a tree planted at each crossing of the lines. By the square method, at 20 feet apart, 108 trees are planted to the acre.

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QUINCUNX SYSTEM.—In this system the orchard is laid off in the same manner as for square planting, except that the number of rows are doubled, and a tree planted in the center of every square. This method is chiefly used in planting with the idea of removing the center trees (which are usually dwarf) when those designed to be permanent shall have attained a considerable size; the orchard then assumes the square plan. At 20 feet apart, 199 trees are planted to an acre by this method.

HEXAGONAL, OR SEPTUPLE, SYSTEM.—In this system the trees are equilateral (equally distant from each other) and more completely fill the space than any other system can. Six



The Quincunx System.

trees form a hexagon and enclose a seventh. The lines in the figure indicate the method of laying out the orchard. By the hexagonal system, at 20 feet apart, 126 trees are planted to the acre.

The following table will show the number of trees to the acre by the square, quincunx, and hexagonal, or septuple, systems:

Distance apart.	Square.	Hexagonal or Septuple.	Quincunx.
10 feet.....	436	500	831
12 feet.....	303	347	571
14 feet.....	222	255	415
16 feet.....	170	195	313
18 feet.....	134	154	247
20 feet.....	108	126	199
22 feet.....	90	103	173
24 feet.....	76	96	137
30 feet.....	48	56	83

NOTE.—In giving the distances of trees of the quincunx, the fifth or central tree is not taken into account.

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TRIANGULAR, OR ALTERNATE, SYSTEM.—In laying out an orchard by this system, the lines are run forming a square, as in the square system; a line is then run diagonally across, and a tree planted alternately, forming a triangle. The advantage in this system is that the trees are given more space, and can be planted closer together without crowding.

For any distance not given in the above data calculate the number of trees to the acre by the square system, and add fifteen per cent. This will give the number if planted septuple.

COST OF BRINGING AN ORCHARD INTO BEARING.—So much depends upon local conditions—soil, climate, water, lay of



The Hexagonal or Septuple System.

the land, whether the owner and his family are to do the work, or it is to be done with hired labor—that any estimates are quite apt to not apply in every detail. Broadly, however, the cost of preparing and grading the land and planting the trees, will average from \$15 to \$25 per acre; this includes cultivation for the first year. After that, however, cost of cultivation will increase, and be about, according to the amount of labor expended, \$15 to \$25 per acre up to the fourth year. If the orchard has been well cared for, it should pay expenses the third year from planting; by the fourth year it should produce about a box of fruit to the tree; the fifth, one and one-half to two boxes to the tree; and from that time on increase in productiveness and profit to its owner in a corresponding ratio to the care and attention expended on it.

The Largest Citrus Nurseries in the World

The volume of irrigating water is also subject to some fluctuation governed by local conditions. Usually the amount would be about one inch to 10 acres for the first two seasons; one and one-half inches for the two following seasons; two inches for the fifth and sixth years; after that period an inch to every four acres will be found to be about the right quantity to use on an orchard in full bearing.

The expense of caring for an orchard obviously hinges on local contingencies. If in full bearing, allowing for cost of water and cost of labor in supplying same, together with the expense of cultivation, would average anywhere from \$25 to \$60 per acre. Much depends upon the owner's resources, environment, and method of carrying on the business.



The Triangular or Alternate System.

TRUE TO NAME.—Our trees are all budded from bearing trees and every precaution exercised to have them true to name, still with all our caution, mistakes are liable to be made, but we hold ourselves in readiness, on proper proof, to replace all stock which may prove untrue to label, free of charge; or to refund the amount paid. It is mutually understood and agreed to between purchasers and ourselves, however, that our guarantee of genuineness shall, in no case, make us liable for any sum greater than that originally paid us for said trees, that prove untrue to name.

BOOKING ORDERS AHEAD.—The demand for trees promises to be unusually active, hence it is advisable for intending purchasers to place their orders early, and thus insure the pick of the stock and be assured of having their wants satisfied. We book orders ahead, and take every precaution to protect our customers, both in the way of reserving the trees as well as in the matter of quality. Write us for prices and particulars.

The Largest Citrus Nurseries in the World

THE LIFE AND BEARING CAPACITY OF THE ORANGE.—Under favorable conditions the orange is a very free bearing tree. Wallace mentions a tree in St. Michaels that bore 20,000 fruits in one crop. The longevity of the tree is not less remarkable. At Versailles one tree is still growing which was sown in 1412, and the famous tree, now upwards of 35 feet in height, in the convent of St. Sabina, at Rome, is said to be more than 600 years old. Some commentators suppose that the "Apples of Gold" were oranges; but there does not seem to be any definite evidence that the orange was cultivated in Palestine in the time of Solomon. More than 700 years later Theophrastus, however, describes the citron as occurring in Northern Persia (Media), and as being cultivated by the Jewish nation in Syria, while under Roman dominion.

TIME OF PLANTING.—The following from "The Orange in California" is to the point: "The orange, being an evergreen, can be planted at any time in the year when the conditions are favorable, and this is determined by the condition of the tree and the season. The orange tree makes several growths during the season, varying in number and season with different varieties and different seasons. But there are periods when all orange trees are dormant, and others when nearly all are active. In transplanting, the trees should be taken at their dormant stage, as the shock of removal will not then be so severe and the tree will more quickly recover.

OUR EXPORT TRADE.—Planters in Mexico, Central and South America, the Philippines, Cuba, and other citrus fruit countries should bear in mind that we make a specialty of exporting orange and lemon trees; and also that we are in a position to make it to their interests to place orders with us. Our export trade is indeed a growing one, orders of considerable magnitude having been received from Mexico, South America, the Philippines, Australia, South Africa, Porto Rica and Cuba. In the interest of this trade we have published an edition of this catalogue in the Spanish language, copies of which we shall be pleased to send to any address or addresses upon application.



CAUTION.—It has come to us that unprincipled growers are disposing of citrus trees as coming from and being grown by the San Dimas Citrus Nurseries. To avoid deception in this regard and to protect our patrons' interests, we label every kind and sort of citrus tree with our individual label,—fac similies of right and reverse sides appear above. All trees coming from our establishment bear this label as a guarantee of their genuineness. See that your purchases contain it; otherwise your trees are not the product of this establishment.

R. M. TEAGUE.

"Infant Trees in the Kindergarten class striving to emulate their elders."

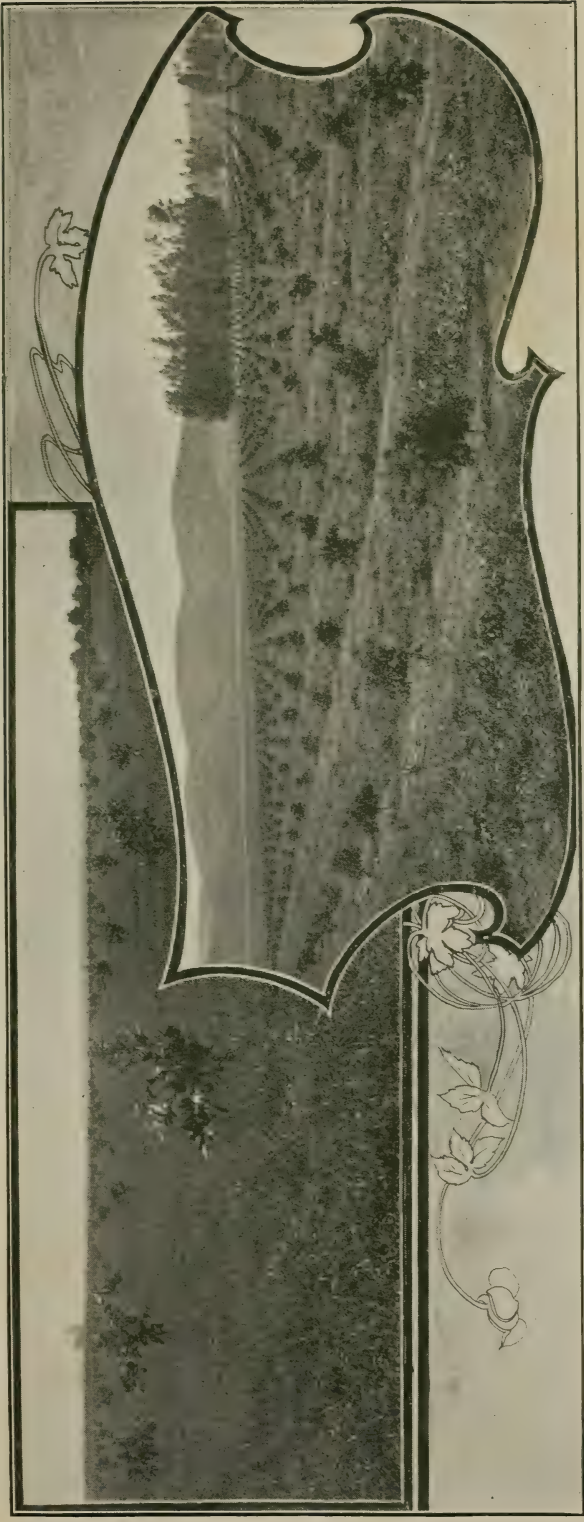


Fig. 18. Navel Orange Grove nine months from planting.

Fig. 19. Navel Orange Grove eight months from planting.

"Do n't worry, but watch us grow."



The same orchard described in Fig. 7; third year from planting.

“In the Senior grade, almost ready for graduating into the fruit-bearing class ”



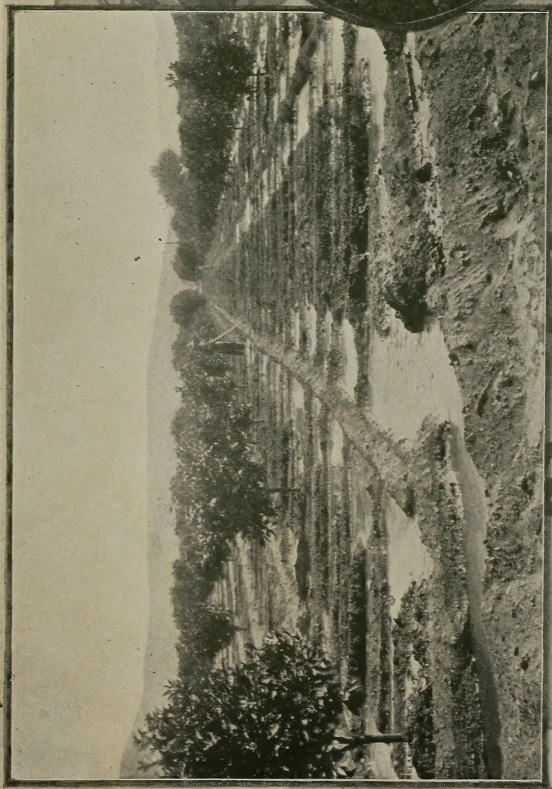
The same orchard shown in Fig. 18, third year from planting.

"The limpid rivulets of irrigating waters slake the thirst of the trees."

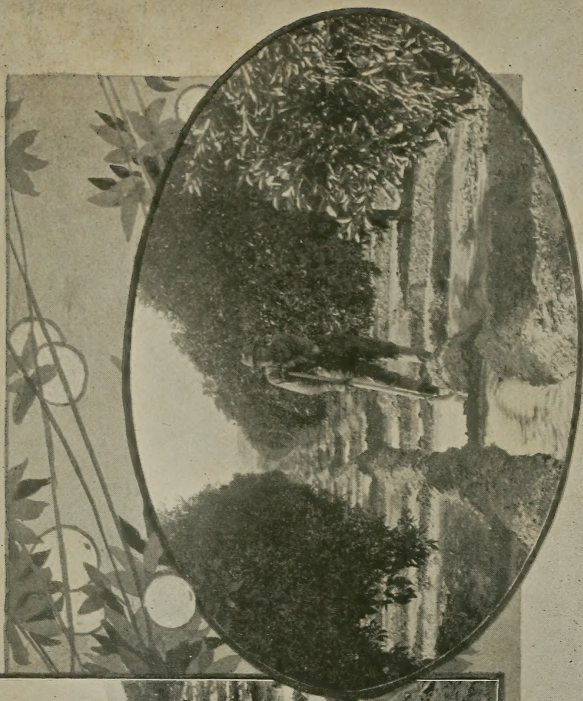


The Furrow System of irrigating an Orange Grove.

"Verily, the Orange Tree is addicted to drink, and takes it in different ways."



The Zig-Sag System of Irrigation.



The Basin System of Irrigation.

"From the grower to the consumer, or the parting of the ways."

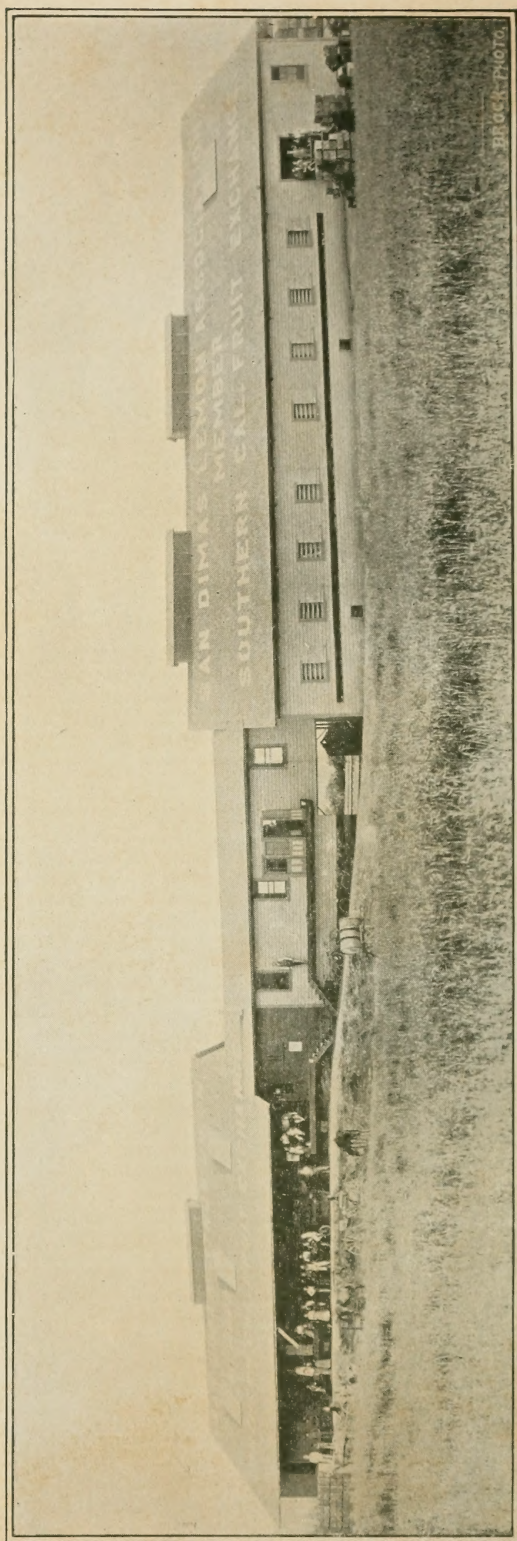


Fig. 15. Buildings of the San Dimas Citrus Union and Lemon Association.

The Largest Citrus Nurseries in the World

A BOUQUET OF COMPLIMENTS.

FOLLOWING extracts are but a few of the many warm words of praise that have been received from those in authority in horticultural affairs, touching our endeavors to exploit the citrus industry, please the public, and to deserve the patronage and esteem of friends and customers:

KAMEHAMEHA SCHOOLS, }
HONOLULU, HAWAII. }

CHARLES BARTLETT DYKE, PRINCIPAL.
W. W. BRISTOL, REGISTRAR AND BUSINESS AGENT.

December 9, 1902.

R. M. Teague, San Dimas Nurseries, San Dimas, Cal.

DEAR SIR:—We hand you herewith Postal Money Order for \$68.98, in payment of your bill for trees recently sent us.

We want the trees first-class. They carried in good shape. We desire to thank you for the generous extra lot of trees which you included.

Very truly yours,
W. W. BRISTOL.

(From Hiram T. Jones, Union County Nurseries, Elizabeth, N. J.)

I am in receipt of your favor of the 4th and also of your book upon citrus trees, and I thank you for the opportunity of seeing it. It is a publication of which you may well be proud. The illustrations are especially clear. I think from the printer's standpoint it is equal to the most ambitious efforts of any of your eastern competitors. I congratulate you.

(From Prof. E. J. Wickson, professor of horticulture, California State University, Berkeley, Cal.)

I am under great obligations to you for sending the copy of your handsome catalogue. I am delighted with the style and richness of ornamentation, also with the care and conscientiousness with which it has been prepared. I believe such publications are exceedingly creditable to California and bear evidence that our horticultural literature in commercial lines is approaching a high level. Such a catalogue is worth a place in the library of every citrus fruit grower.

(From D. F. Fowler, conductor of Farmers' Institutes for the California State University.)

Permit me to thank you for the very handsome catalogue which you have mailed me. Personally, I do not expect to purchase any citrus trees, but in conducting the Institute work I am frequently called upon for reference to reliable nurserymen, and I shall be pleased to mention you in the future as I have done in the past.

(From G. H. A. Goodwin, editor of The California Cultivator.)

On behalf of the firm, as well as personally, allow me to congratulate you most heartily on your catalogue, which is a beauty and forms a pleasing index to your phenomenal success.

(From Dr. F. Franceschi, manager Southern California Acclimatizing Association, Santa Barbara, Cal.)

I must congratulate you very sincerely for your new catalogue, which certainly gives great credit to Southern California.

(From Steidtmann & Nagel, Fruit Growers, Hamburg, Germany.)

Your catalogue on Citrus Trees commands our attention and admiration. Many thanks for it. We consider your firm energetic and clever.

The Largest Citrus Nurseries in the World

THE "BOSS" TREE PROTECTORS.




In planting a citrus orchard it is of prime importance to afford the trunks of the young and comparatively branchless trees with some protection from the burning rays of the summer sun until they attain sufficiently unbrageous heads to afford a shade. This can be easily and economically done with the "BOSS" YUCCA TREE PROTECTORS, which are of low cost and serve the purpose admirably. They are made from the wood of the Yucca palm and are light in color and weight, affording a perfect protection against rabbits, grasshoppers, borers, the winter frosts and summer suns. By reason of pliability they are readily adjusted, no tying or wrapping, while the porous nature of the wood allows the free circulation of air. They are easily removed when spraying trees, and are not affected by the rain.

As a matter of fact they are cheap, efficient, durable, and just the thing for the purpose. Made in all widths and sizes. Send for free sample.

PRICE LIST.

No.	Per 1000
4—30 inches long, 7 inches wide.....	\$17 50
5—24 inches long, 7 inches wide	15 00
6—18 inches long, 7 inches wide	12 50
7—16 inches long, 7 inches wide	11 25
9—14 inches long, 7 inches wide	10 00
10—12 inches long, 7 inches wide	9 00
11—10 inches long, 7 inches wide	8 00
4.....22.....	\$1 50 per inch per 1000
5.....18.....	1 30 per inch per 1000
6.....13.....	1 10 per inch per 1000
7.....12.....	90 per inch per 1000
9.....10.....	70 per inch per 1000
10.....9.....	60 per inch per 1000
11.....	40 per inch per 1000

 Trade supplied in any quantities by

R. M. TEAGUE,

SAN DIMAS, CAL.

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